MOTION PICTURE

MIT

Massachusetts Institute of Technology

MAS: Media Laboratory

Frank Appiah, PhD Dissertation

A Synthesis Content of Motion Picture-Media Objects.

Abstract

Motion Picture is a form of entertainment that enacts a story by sound and a sequence of images giving the illusion of continuous movement.This dissertation employed an experimental design to assess the extent to which viewing a specific popular motion picture altered cognitive and affective images of the urban place it depicted, a popular culture. Implications of the study pertain to the development of practical understandings about the relationships of movies—as a form of popular culture—to destination image.

MOTION PICTURE

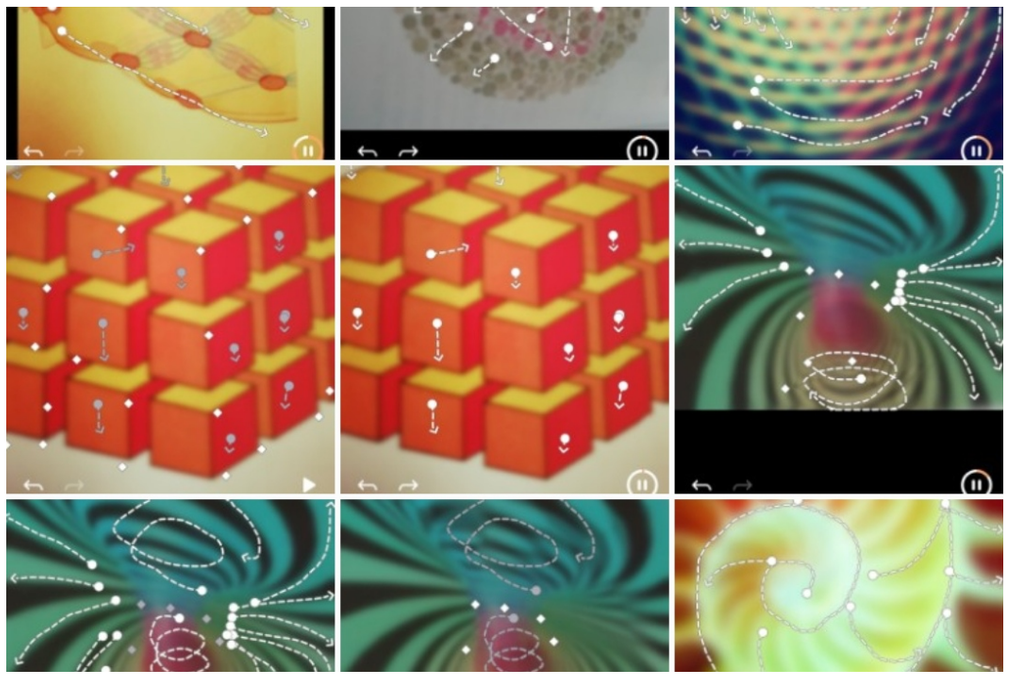
1. A movie refers to a motion picture.

2. Film also called a movie, motion picture or moving picture, is a work of visual art used to simulate experiences that communicate ideas, stories, perceptions, feelings, beauty, or atmosphere through the use of moving images.

3. Motion Pictures are works that contain a series of related images that are intended to be shown with a projector, digital display, or other device. When the images are shown in successive order, they create an impression of movement that is perceptible to the eye.

4. The history of motion picture begins with human expression.

5. The real story of arts is the recreate of a plausible joy from the events of emotion inspirations.[11]



History of Motion Pictures.

The motion picture is the basic art and the sense of visual recreation of the desired event. It is fundamental in character and imported than the peasantry of arts, drama of speaking stage, arts of spoken word or printed words and rituals. Motion picture is much directly and genealogical akin to the fundamentals. There is certain element of motion pictures that the prehistoric man desires and it is the representation of attainment by the use of evolving editing tools and materials.

To tediously forge out the association and experience in effort to satisfy the living picture wish involves the written language and arts of literacy and the use of the word must be understood in their true relation, as make-shift expedients, attenuated, evolved and far-removed from its origin. Man as a picture-maker is an evolution of language that might be indefinitely delays with its all elaborate all-offsprings and words-culture.

The motion picture is by, for and of the primitive. All endeavours of the living motion picture were the wall paintings, pictographs, sculptures, sign languages and their expressive media. The motion picture wish had to wait for the technological advancement and development. The growth of motion picture is inevitable. Motion picture as an institution is rapidly increasing in dominance. Throughout the twentieth century, motion pictures proved invaluable to humans on the level of the individual and in social, cultural, and political realms. There is no doubt that their significance will continue. It is commonplace for individuals to describe films that entertain them, or touch them personally, and that change their lives. Likewise, countries, cultures, societies, nations, and ethnic groups have long affirmed the importance of motion pictures to their group identities and social movements.

The development of motion pictures from cultural perspective includes some technical detail and thoughts on the future of motion pictures. In just over one century, motion pictures have changed the way humans live. At this moment, millions of people are watching movies in practically every corner of the world. Motion pictures join the personal, artistic, political, and cultural in unique ways that have made them both pervasive and influential. New Internet-based technologies suggest that, if important issues such as the international digital divide can be successfully resolved, the production, distribution, and exhibition of motion pictures may be decentralised and democratised. Understanding motion pictures requires a historical and cultural perspective. Although the technology of the cinema plays an important role in its development, it is more often the sociopolitical and cultural environment in which films are made that most significantly affect them as a mode of communication and entertainment.

In most places, motion pictures are both art and commerce, and maintaining the balance between these two, often competing, forces is difficult. Likewise, movies are both entertainment and cultural communication, another duality that causes problems in terms of representation and ideological perspective.

Motion pictures are an important part of human life. Millions of people routinely view them in small and large theatre, classrooms, workplaces, small outdoor community squares, and large auditoriums. Motion pictures are internationally distributed where they can be projected onto screens, broadcast to television sets, or circulated by videocassette or digital disk technology, and in some parts of the world, motion pictures can be viewed on computers with Internet connections. The movies, in only one hundred years, have become a pervasive and influential mass media. They created a highly competitive character for the early film industry that encouraged filmmakers to be innovative in both the art and technology of motion pictures. France, Italy, and the United States led the early development of the motion picture industry; however, the early 1900s also saw filmmaking develop in England, Germany, Denmark, and Japan. Unfortunately, this early period of competitiveness by a large group of independent filmmakers was relatively short lived. Soon it became apparent that a few large companies would dominate the filmmaking business by a variety of means, including forcing out their competition, merging, and the formation of oligopolies that protected their investments in filmmaking by controlling the industry through vertical integration. In essence, the large companies, called studios, produced the films, distributed the films, and either directly or indirectly controlled the exhibition of the films.

Yet, these little views of life and short performances did not consist of much more than a static camera set up to record the image on film. The narrative art of filmmaking developed as a natural outgrowth in this new entertainment medium. Its similarities to theatre were obvious, and its potential for presenting vignettes was realised by several different filmmakers early on.[24]

The complex and dynamic interactions that determine the success or failure of motion picture make the industry not only interesting, but also challenging to study. This dissertation has provided a comprehensive overview of research and identifying important questions.

In here, I address the relationship between movies and other new product categories and associated research opportunities. I note a number of reasons to study movies or motion pictures, one of which is that insights may generate to other industries that have similar characteristics. The rapid introduction of new movies makes the industry an appealing context to explore issues in new product development and commercialisation. A second difference from most other research is that it provides motion pictures with rich data for the entire dissertation life cycle. A research question is this category is the magnitude of the purely psychological and social value of being an early adopter, independent of any benefits realised from functional superiority. One major difference is that new movies are not functionality or technologically superior substitutes for existing movies. The innovative development approach is by doing something new in a new way. The context of psychological value of motion pictures in terms sensation and perception has not been studied but the experimental method of research design has been studied. The implications of distribution, release timing, temporal pricing, the likelihood of privacy has been studied by means of hypermedia interventions/methods.

Any graphic art seems to involve an element of the dimension of time. For example, printing allows us to review in our imagination the happenings of previous times or the prediction of future happenings; paintings indicate to us things that happened in the past, and to happen in the future; likewise sculpture seems to contain that “mysterious” element of either preserving or reproducing happenings in time. A review of motion picture explores. In the motion picture, which may be called a graphic art, certainly the element of time is more intimately involved than in any of the other three arts mentioned.

A reel of film may contain pictures of the dead villain, the live villain, and the unborn villain; it contains the beginning and the end; and that is all contained in that one reel of film at that very same time. In that reel of film those things have happened or they are going to happen. You can make it go backward or frontward. You can cut out a piece in the middle; you can stick it together and have that which happened previously happen today and then show the retrospect. You can delay the action and shift it further along in the story. You can take the element of time and just move it anywhere you wish.

Time without geographic solidity and actual physical body would be as listless as physical body would be without time, so in the motion picture we have to put something tangible on the screen. We have to make an entertainment out of it. I believe the question of appeal of motion pictures to the general public is based on two main factors: One might be called the “mysterious” element of time involvement, and the other the presentation of realistic geographic records. That is, when you see a motion picture you feel that you are seeing something that either did happen, or could happen if it is a good one.

D. Shearer, "The technology of motion pictures," in *Electrical Engineering*, vol. 60, no. 4, pp. 168-172, April 1941, doi: 10.1109/EE.1941.6432066. keywords: {Motion pictures;Art;Geography;Lighting;Films;Noise;Ear},

Introduction to Moving Picture Experts Group

MPEG-4 [24, 15] builds on the proven success of three fields:

- Digital television;
- Interactive graphics applications (synthetic content);
- Interactive multimedia (World Wide Web, distribution of and access to content)

MPEG-4 provides the standardised technological elements enabling the integration of the production, distribution and content access paradigms of the three

The MPEG-4 standard provides a set of technologies to satisfy the needs of authors, service providers and end users alike.

- For authors, MPEG-4 enables the production of content that has far greater reusability, has greater flexibility than is possible today with individual technologies such as digital television, animated graphics, World Wide Web (WWW) pages and their extensions. Also, it is now possible to better manage and protect content owner rights.
- For network service providers MPEG-4 offers transparent information, which can be interpreted and translated into the appropriate native signaling messages of each network with the help of relevant standards bodies. The foregoing, however, excludes Quality of Service considerations, for which MPEG-4 provides a generic QoS descriptor for different MPEG-4 media. The exact translations from the QoS parameters set for each media to the network QoS are beyond the scope of MPEG-4 and are left to network providers. Signaling of the MPEG-4 media QoS descriptors end-to-end enables transport optimisation in heterogeneous networks.
- For end users, MPEG-4 brings higher levels of interaction with content, within the limits set by the author. It also brings multimedia to new networks, including those employing relatively low bitrate, and mobile ones. An MPEG-4 applications document exists on the MPEG Home page (www.cselt.it/mpeg), which describes many end user applications, including interactive multimedia broadcast and mobile communications.

For all parties involved, MPEG seeks to avoid a multitude of proprietary, non-interworking formats and players. MPEG-4 achieves these goals by providing standardised ways to:

1. represent units of aural, visual or audiovisual content, called “media objects”. These media objects can be of natural or synthetic origin; this means they could be recorded with a camera or microphone, or generated with a computer;
2. describe the composition of these objects to create compound media objects that form audiovisual scenes;
3. multiplex and synchronise the data associated with media objects, so that they can be transported over network channels providing a QoS appropriate for the nature of the specific media objects; and interact with the audiovisual scene generated at the receiver’s end.

A. Coded representation of media objects

MPEG-4 audiovisual scenes are composed of several media objects, organised in a hierarchical fashion. At the leaves of the hierarchy, we find primitive media objects, such as:

- Still images (e.g. as a fixed background);
- Video objects (e.g. a talking person - without the background;
- Audio objects (e.g. the voice associated with that person, background music);

MPEG-4 standardises a number of such primitive media objects, capable of representing both natural and synthetic content types, which can be either 2- or 3-dimensional. In addition to the media objects mentioned above and shown in Figure 1, MPEG-4 defines the coded representation of objects such as:

- Text and graphics;
- Talking synthetic heads and associated text used to synthesise the speech and animate the head; animated bodies to go with the faces;
- Synthetic sound.

A media object in its coded form consists of descriptive elements that allow handling the object in an audiovisual scene as well as of associated streaming data, if needed. It is important to note that in its coded form, each media object can be represented independent of its surroundings or background.
The coded representation of media objects is as efficient as possible while taking into account the desired functionalities. Examples of such functionalities are error robustness, easy extraction and editing of an object, or having an object available in a scaleable form.

B. Composition of media objects

Figure 1 explains the way in which an audiovisual scene in MPEG-4 is described as composed of individual objects. The figure contains compound media objects that group primitive media objects together. Primitive media objects correspond to leaves in the descriptive tree while compound media objects encompass entire sub-trees. As an example: the visual object corresponding to the talking person and the corresponding voice are tied together to form a new compound media object, containing both the aural and visual components of

Such grouping allows authors to construct complex scenes, and enables consumers to manipulate meaningful (sets of) objects.

More generally, MPEG-4 provides a standardised way to describe a scene, allowing for example to:

- Place media objects anywhere in a given coordinate system;
- Apply transforms to change the geometrical or acoustical appearance of a media object;
- Group primitive media objects in order to form compound media objects;
- Apply streamed data to media objects, in order to modify their attributes (e.g. a sound, a moving texture belonging to an object; animation parameters driving a synthetic face);
- Change, interactively, the user's viewing and listening points anywhere in the scene.

The scene description builds on several concepts from the Virtual Reality Modelling language (VRML) in terms of both its structure and the functionality of object composition nodes and extends it to fully enable the aforementioned features.

C. Media objects

Media objects may need streaming data, which is conveyed in one or more elementary streams. An object descriptor identifies all streams associated to one media object. This allows handling hierarchically encoded data as well as the association of meta-information about the content (called 'object content information') and the intellectual property rights associated with it.
Each stream itself is characterised by a set of descriptors for configuration information, e.g., to determine the required decoder resources and the precision of encoded timing information. Furthermore the descriptors may carry hints to the Quality of Service (QoS) it requests for transmission (e.g., maximum bit rate, bit error rate, priority, etc.) Synchronisation of elementary streams is achieved through time stamping of individual access units within elementary streams. The synchronisation layer manages the identification of such access units and the time stamping. Independent of the media type, this layer allows identification of the type of access unit (e.g., video or audio frames, scene description commands) in elementary streams, recovery of the media object's or scene description's time base, and it enables synchronisation among them. The syntax of this layer is configurable in a large number of ways, allowing use in a broad spectrum of systems.

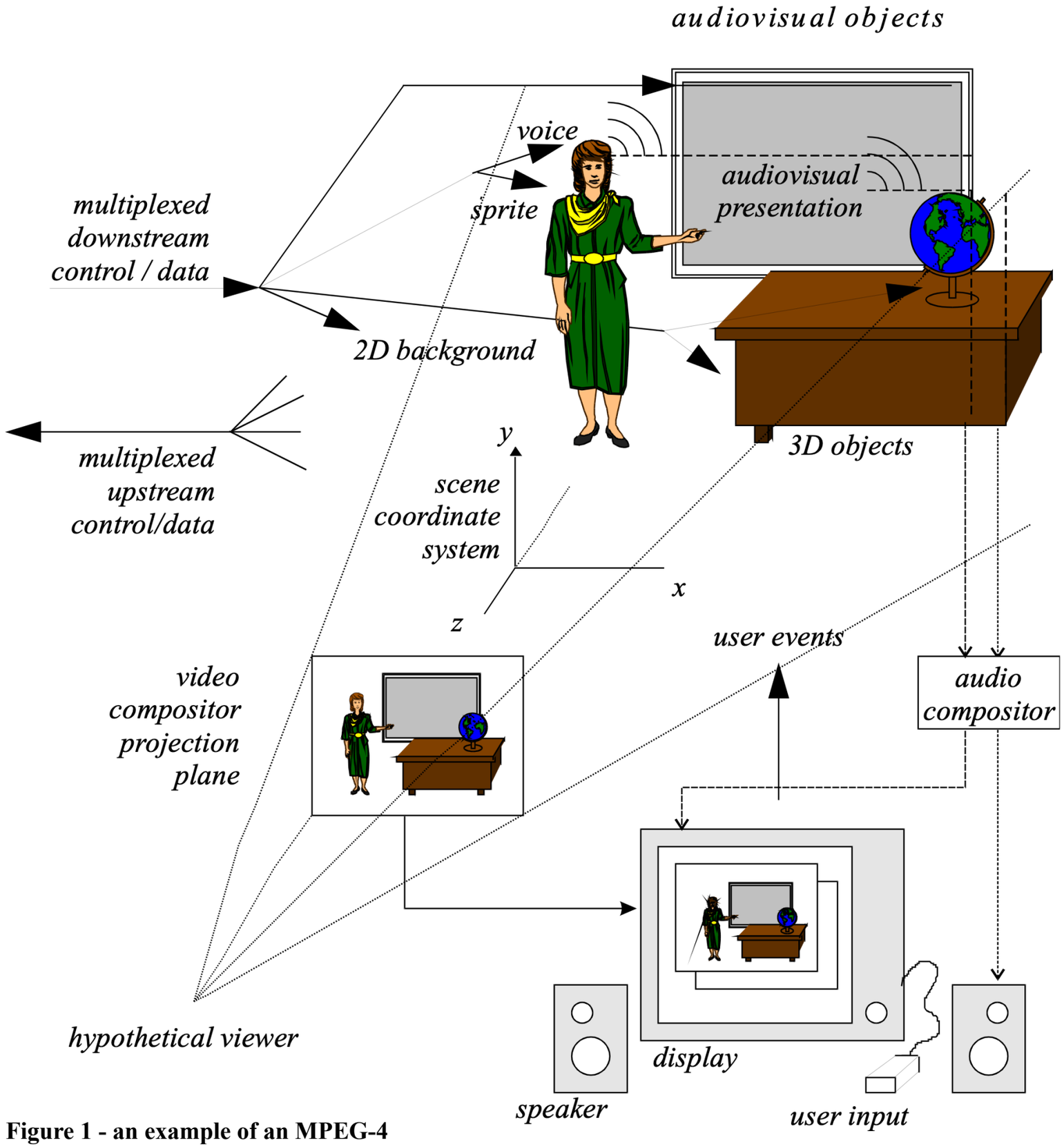


Figure 1 - an example of an MPEG-4 Scene

The synchronised delivery of streaming information from source to destination, exploiting different QoS as available from the network, is specified in terms of the synchronisation layer and a delivery layer containing a two-layer multiplexer, as depicted in Figure 2. The first multiplexing layer is managed according to the DMIF specification, part 6 of the MPEG4 standard. (DMIF stands for Delivery Multimedia Integration Framework) This multiplex may be embodied by the MPEG-defined FlexMux tool, which allows grouping of Elementary Streams (ESs) with a low multiplexing overhead. Multiplexing at this layer may be used, for example, to group ES with similar QoS requirements, reduce the number of network connections or the end to end delay.

The “TransMux” (Transport Multiplexing) layer in Figure 2 models the layer that offers transport services matching the requested QoS. Only the interface to this layer is specified by MPEG-4 while the concrete mapping of the data packets and control signaling must be done in collaboration with the bodies that have jurisdiction over the respective transport protocol. Any suitable existing transport protocol stack such as (RTP)/UDP/IP, (AAL5)/ATM, or MPEG-2’s Transport Stream over a suitable link layer may become a specific TransMux instance. The choice is left to the end user/service provider, and allows MPEG-4 to be used in a wide variety of operation environments. Use of the FlexMux multiplexing tool is optional and, as shown in Figure 2, this layer may be empty if the underlying TransMux instance provides all the required functionality. The synchronization layer, however, is always present. With regard to Figure 2, it is possible to:

- Identify access units, transport timestamps and clock reference information and identify data loss.
- Optionally interleave data from different elementary streams into FlexMux streams
- Convey control information to:
- Indicate the required QoS for each elementary stream and FlexMux stream;
- Translate such QoS requirements into actual network resources;
- Associate elementary streams to media objects
- Convey the mapping of elementary streams to FlexMux and TransMux channels

Parts of the control functionalities are available only in conjunction with a transport control entity like the DMIF framework.

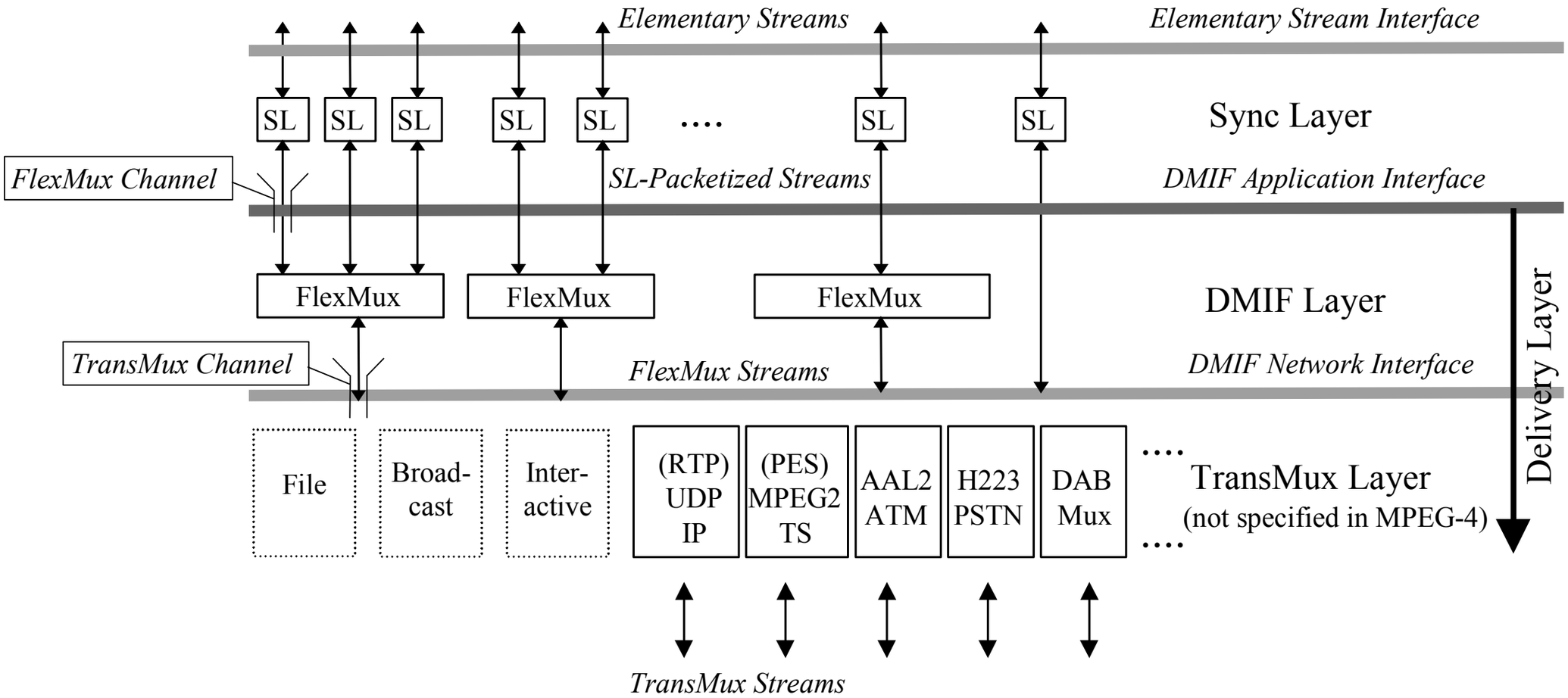


Figure 2 - The MPEG-4 System Layer Model

D. Interaction with Media Object.

In general, the user observes a scene that is composed following the design of the scene's author. Depending on the degree of freedom allowed by the author, however, the user has the possibility to interact with the scene. Operations a user may be allowed to perform include:

- Change the viewing/listening point of the scene, e.g. by navigation through a scene;
- Drag objects in the scene to a different position;
- Trigger a cascade of events by clicking on a specific object, e.g. starting or stopping a video stream;
- Select the desired language when multiple language tracks are available;

More complex kinds of behaviour can also be triggered, e.g. a virtual phone rings, the user answers and a communication link is established.

E. Management and Identification of Intellectual Property

It is important to have the possibility to identify intellectual property in MPEG-4 media objects. Therefore, MPEG has worked with representatives of different creative industries in the definition of syntax and tools to support this. A full elaboration of the requirements for the identification of intellectual property can be found in 'Management and Protection of Intellectual Property in MPEG-4, which is publicly available from the MPEG home page.

MPEG-4 incorporates identification the intellectual property by storing unique identifiers, which are issued by international numbering systems (e.g. ISAN, ISRC, etc.). These numbers can be applied to identify a current rights holder of a media object. Since not all content is identified by such a number, MPEG-4 Version 1 offers the possibility to identify intellectual property by a key-value pair (e.g.:»composer«/»John Smith«). Also, MPEG-4 offers a standardised interface that is integrated tightly into the Systems layer to people who want to use systems that control access to intellectual property. With this interface, proprietary control systems can be easily amalgamated with the standardised part of the decoder.

F. Systems

As explained above, MPEG-4 defines a toolbox of advanced compression algorithms for audio and visual information. The data streams (Elementary Streams, ES) that result from the coding process can be transmitted or stored separately, and need to be composed so as to create the actual multimedia presentation at the receiver side.

The systems part of the MPEG-4 addresses the description of the relationship between the audio-visual components that constitute a scene. The relationship is described at two main levels.

- The Binary Format for Scenes (BIFS) describes the spatio-temporal arrangements of the objects in the scene. Viewers may have the possibility of interacting with the objects, e.g. by rearranging them on the scene or by changing their own point of view in a 3D virtual environment. The scene description provides a rich set of nodes for 2-D and 3-D composition operators and graphics primitives.
- At a lower level, Object Descriptors (ODs) define the relationship between the Elementary Streams pertinent to each object (e.g the audio and the video stream of a participant to a videoconference) ODs also provide additional information such as the URL needed to access the Elementary Steams, the characteristics of the decoders needed to parse them, intellectual property and others.

Other issues addressed by MPEG-4 Systems:

- A standard file format supports the exchange and authoring of MPEG-4 content
- Interactivity, including: client and server-based interaction; a general event model for triggering events or routing user actions; general event handling and routing between objects in the scene, upon user or scene triggered events.
- Java (MPEG-J) is used to be able to query to terminal and its environment support and there is also a Java application engine to code 'MPEGlets'.
- A tool for interleaving of multiple streams into a single stream, including timing information (FlexMux tool).
- A tool for storing MPEG-4 data in a file (the MPEG-4 File Format, ‘MP4’)
- Interfaces to various aspects of the terminal and networks, in the form of Java API’s (MPEGJ)
- Transport layer independence. Mappings to relevant transport protocol stacks, like (RTP)/UDP/IP or MPEG-2 transport stream can be or are being defined jointly with the responsible standardisation bodies.
- Text representation with international language support, font and font style selection, timing and synchronisation.
- The initialisation and continuous management of the receiving terminal’s buffers.
- Timing identification, synchronisation and recovery mechanisms.
- Datasets covering identification of Intellectual Property Rights relating to media objects.

F4 Audio

MPEG-4 Audio facilitates a wide variety of applications which could range from intelligible speech to high quality multichannel audio, and from natural sounds to synthesised sounds. In particular, it supports the highly efficient representation of audio objects consisting of:

1. General Audio Signals

Support for coding general audio ranging from very low bitrates up to high quality is provided by transform coding techniques. With this functionality, a wide range of bitrates and bandwidths is covered. It starts at a bitrate of 6 kbit/s and a bandwidth below 4 kHz and extends to broadcast quality audio from mono up to multichannel. High quality can be achieved with low delays. Parametric Audio Coding allows sound manipulation at low speeds. Fine Granularity Scalability (or FGS, scalability resolution down to 1 kbit/s per channel)

2. Speech signals

Speech coding can be done using bitrates from 2 kbit/s up to 24 kbit/s using the speech coding tools. Lower bitrates, such as an average of 1.2 kbit/s, are also possible when variable rate coding is allowed. Low delay is possible for communications applications. When using the HVXC tools, speed and pitch can be modified under user control during playback. If the CELP tools are used, a change of the playback speed can be achieved by using and additional tool for effects processing.

3. Synthetic Audio

MPEG-4 Structured Audio is a language to describe 'instruments' (little programs that generate sound) and 'scores' (input that drives those objects). These objects are not necessarily musical instruments, they are in essence mathematical formulae, that could generate the sound of a piano, that of falling water – or something 'unheard' in nature.

4. Synthesised Speech

Scalable TTS coders bitrate range from 200 bit/s to 1.2 Kbit/s which allows a text, or a text with prosodic parameters (pitch contour, phoneme duration, and so on), as its inputs to generate intelligible synthetic speech.

G Visual

The MPEG-4 Visual standard allows the hybrid coding of natural (pixel based) images and video together with synthetic (computer generated) scenes. This enables, for example, the virtual presence of videoconferencing participants. To this end, the Visual standard comprises tools and algorithms supporting the coding of natural (pixel based) still images and video sequences as well as tools to support the compression of synthetic 2-D and 3-D graphic geometry parameters (i.e. compression of wire grid parameters, synthetic text).
The subsections below give an itemised overview of functionalities that the tools and algorithms of in the MPEG-4 visual standard.

1. *Formats Supported*

The following formats and bitrates are be supported by MPEG-4 Visual :

- bitrates: typically between 5 kbit/s and more than 1 Gbit/s
- Formats: progressive as well as interlaced video
- Resolutions: typically from sub-QCIF to 'Studio' resolutions (4k x 4k pixels)

2. *Compression Efficiency*

- For all bit rates addressed, the algorithms are very efficient. This includes the compact coding of textures with a quality adjustable between "acceptable" for very high compression ratios up to "near lossless".
- Efficient compression of textures for texture mapping on 2-D and 3-D meshes.
- Random access of video to allow functionalities such as pause, fast forward and fast reverse of stored video.

3. *Content-Based Functionalities*

- Content-based coding of images and video allows separate decoding and reconstruction of arbitrarily shaped video objects.
- Random access of content in video sequences allows functionalities such as pause, fast forward and fast reverse of stored video objects.
- Extended manipulation of content in video sequences allows functionalities such as warping of synthetic or natural text, textures, image and video overlays on reconstructed video content. An example is the mapping of text in front of a moving video object where the text moves coherently with the object.

4. *Scalability of Textures, Images and Video*

- Complexity scalability in the encoder allows encoders of different complexity to generate valid and meaningful bitstreams for a given texture, image or video.
- Complexity scalability in the decoder allows a given texture, image or video bitstream to be decoded by decoders of different levels of complexity. The reconstructed quality, in general, is related to the complexity of the decoder used. This may entail that less powerful decoders decode only a part of the bitstream.
- Spatial scalability allows decoders to decode a subset of the total bitstream generated by the encoder to reconstruct and display textures, images and video objects at reduced spatial resolution. A maximum of 11 levels of spatial scalability are supported in so-called 'fine-granularity scalability', for video as well as textures and still images.
- Temporal scalability allows decoders to decode a subset of the total bitstream generated by the encoder to reconstruct and display video at reduced temporal resolution. A maximum of three levels are supported.
- Quality scalability allows a bitstream to be parsed into a number of bitstream layers of different bitrate such that the combination of a subset of the layers can still be decoded into a meaningful signal. The bitstream parsing can occur either during transmission or in the decoder. The reconstructed quality, in general, is related to the number of layers used for decoding and reconstruction.
- Fine Grain Scalability – a combination of the above in fine grain steps, up to 11 steps

5. *Shape and Alpha Channel Coding*

- Shape coding assists the description and composition of conventional images and video as well as arbitrarily shaped video objects. Applications that benefit from binary shape maps with images are content-based image representations for image databases, interactive games, surveillance, and animation. There is an efficient technique to code binary shapes. A binary alpha map defines whether or not a pixel belongs to an object. It can be 'on' or 'off'.
- 'Grayscale' or 'alpha' Shape Coding
  An alpha plane defines the 'transparency' of an object, which is not necessarily uniform; it can vary over the object, so that, e.g., edges are more transparent (a technique called feathering). Multilevel alpha maps are frequently used to blend different layers of image sequences. Other applications that benefit from associated binary alpha maps with images are content-based image representations for image databases, interactive games, surveillance, and animation.

6. *Robustness in Error Prone Environments*

Error resilience allows accessing image and video over a wide range of storage and transmission media. This includes the useful operation of image and video compression algorithms in error-prone environments at low bit-rates (i.e., less than 64 Kbps). There are tools that address both the band-limited nature and error resiliency aspects of access over wireless networks.

7. Face and Body Animation

The 'Face and Body Animation' tools in the standard allow sending parameters that can define, calibrate and animate synthetic faces and bodies. These models themselves are not standardised by MPEG-4, only the parameters are, although there is a way to send, e.g., a well-defined face to a decoder.

- Definition and coding of face and body animation parameters (model independent):
  - Feature point positions and orientations to animate the face and body definition meshes
  - Visemes, or visual lip configurations equivalent to speech phonemes
- Definition and coding of face and body definition parameters (for model calibration):
  - 3-D feature point positions
  - 3-D head calibration meshes for animation
  - Personal characteristics
- Facial texture coding

8. Coding of 2-D Meshes with Implicit Structure

2D mesh coding includes:

- Mesh-based prediction and animated texture transfiguration
  - 2-D Delaunay or regular mesh formalism with motion tracking of animated objects
  - Motion prediction and suspended texture transmission with dynamic meshes.
- Geometry compression for motion vectors:
  - 2-D mesh compression with implicit structure & decoder reconstruction

9. Coding of 3-D Polygonal Meshes

MPEG-4 provides a suite of tools for coding 3-D polygonal meshes. Polygonal meshes are widely used as a generic representation of 3-D objects. The underlying technologies compress the connectivity, geometry, and properties such as shading normals, colours and texture coordinates of 3-D polygonal meshes.

G.2 Visual Profiles

MPEG-4 provides a large and rich set of tools for the coding of audio-visual objects. In order to allow effective implementations of the standard, subsets of the MPEG-4 Systems, Visual, and Audio tool sets have been identified, that can be used for specific applications. These subsets, called 'Profiles', limit the tool set a decoder has to implement. For each of these Profiles, one or more Levels have been set, restricting the computational complexity. The approach is similar to MPEG-2, where the most well known Profile/Level combination is 'Main Profile @ Main Level'. A Profile@Level combination allows:

- a codec builder to implement only the subset of the standard he needs, while maintaining interworking with other MPEG-4 devices built to the same combination, and
- checking whether MPEG-4 devices comply with the standard ('conformance testing').

Profiles exist for various types of media content (audio, visual, and graphics) and for scene descriptions. MPEG does not prescribe or advise combinations of these Profiles, but care has been taken that good matches exist between the different areas.

1. Visual Profiles

The visual part of the standard provides profiles for the coding of natural, synthetic, and synthetic/natural hybrid visual content. There are five profiles for natural video content:

1. The Simple Visual Profile provides efficient, error resilient coding of rectangular video objects, suitable for applications on mobile networks, such as PCS and IMT2000.
2. The Simple Scalable Visual Profile adds support for coding of temporal and spatial scalable objects to the Simple Visual Profile, It is useful for applications which provide services at more than one level of quality due to bit-rate or decoder resource limitations, such as Internet use and software decoding.
3. The Core Visual Profile adds support for coding of arbitrary-shaped and temporally scalable objects to the Simple Visual Profile. It is useful for applications such as those providing relatively simple content-interactivity (Internet multimedia applications).
4. The Main Visual Profile adds support for coding of interlaced, semi-transparent, and sprite objects to the Core Visual Profile. It is useful for interactive and entertainment-quality broadcast and DVD applications.
5. The N-Bit Visual Profile adds support for coding video objects having pixel-depths ranging from 4 to 12 bits to the Core Visual Profile. It is suitable for use in surveillance applications.

The profiles for synthetic and synthetic/natural hybrid visual content are:

6. The Simple Facial Animation Visual Profile provides a simple means to animate a face model, suitable for applications such as audio/video presentation for the hearing impaired.
7. The Scalable Texture Visual Profile provides spatial scalable coding of still image (texture) objects useful for applications needing multiple scalability levels, such as mapping texture onto objects in games, and high-resolution digital still cameras.
8. The Basic Animated 2-D Texture Visual Profile provides spatial scalability, SNR scalability, and mesh-based animation for still image (textures) objects and also simple face object animation.
9. The Hybrid Visual Profile combines the ability to decode arbitrary-shaped and temporally scalable natural video objects (as in the Core Visual Profile) with the ability to decode several synthetic and hybrid objects, including simple face and animated still image objects. It is suitable for various content-rich multimedia applications.

Version 2 adds the following Profiles for natural video:

10. The Advanced Real-Time Simple Profile (ARTS) provides advanced error resilient coding techniques of rectangular video objects using a back channel and improved temporal resolution stability with the low buffering delay. It is suitable for real time coding applications; such as the videophone, tele-conferencing and the remote observation.
11. The Core Scalable Profile adds support for coding of temporal and spatial scalable arbitrarily shaped objects to the Core Profile. The main functionality of this profile is object based SNR and spatial/temporal scalability for regions or objects of interest. It is useful for applications such as the Internet, mobile and broadcast.
12. The Advanced Coding Efficiency (ACE) Profile improves the coding efficiency for both rectangular and arbitrary shaped objects. It is suitable for applications such as mobile broadcast reception, the acquisition of image sequences (camcorders) and other applications where high coding efficiency is requested and small footprint is not the prime concern.

The Version 2 profiles for synthetic and synthetic/natural hybrid visual content are:

13.The Advanced Scaleable Texture Profile supports decoding of arbitrary-shaped texture and still images including scalable shape coding, wavelet tiling and error-resilience. It is useful for applications that require fast random access as well as multiple scalability levels and arbitrary-shaped coding of still objects. Examples are fast content-based still image browsing on the Internet, multimedia-enabled PDA's, and Internet-ready high-resolution digital still cameras.
14. The Advanced Core Profile combines the ability to decode arbitrary-shaped video objects (as in the Core Visual Profile) with the ability to decode arbitrary-shaped scalable still image objects (as in the Advanced Scaleable Texture Profile.) It is suitable for various content-rich multimedia applications such as interactive multimedia streaming over Internet.
15. The Simple Face and Body Animation Profile is a superset of the Simple Face Animation Profile, adding - obviously - body animation.

In subsequent Versions, the following Profiles were added:

1. The Advanced Simple Profile looks much like Simple in that it has only rectangular objects, but it has a few extra tools that make it more efficient: B-frames, ¼ pel motion compensation, extra quantization tables and global motion compensation.
2. The Fine Granularity Scalability Profile allows truncation of the enhancement layer bitstream at any bit position so that delivery quality can easily adapt to transmission and decoding circumstances. It can be used with Simple or Advanced Simple as a base layer.
3. The Simple Studio Profile is a profile with very high quality for usage in Studio editing applications. It only has I frames, but it does support arbitrary shape and in fact multiple alpha channels. Bitrates go up to almost 2 Gigabit per second.
4. The Core Studio Profile adds P frames to Simple Studio, making it more efficient but also requiring more complex implementations.

H Audio Profile

Four Audio Profiles have been defined in MPEG-4 V.1:

1. The Speech Profile provides HVXC, which is a very-low bit-rate parametric speech coder, a CELP narrowband/wideband speech coder, and a Text-To-Speech interface.
2. The Synthesis Profile provides score driven synthesis using SAOL and wavetables and a Text-to-Speech Interface to generate sound and speech at very low bitrates.
3. The Scalable Profile, a superset of the Speech Profile, is suitable for scalable coding of speech and music for networks, such as Internet and Narrow band Audio DIgital Broadcasting (NADIB). The bitrates range from 6 kbit/s and 24 kbit/s, with bandwidths between 3.5 and 9 kHz.
4. The Main Profile is a rich superset of all the other Profiles, containing tools for natural and synthetic Audio.

Another four Profiles were added in MPEG-4 V.2:

5. The High Quality Audio Profile contains the CELP speech coder and the Low Complexity AAC coder including Long Term Prediction. Scalable coding coding can be performed by the AAC Scalable object type. Optionally, the new error resilient (ER) bitstream syntax may be used.
6. The Low Delay Audio Profile contains the HVXC and CELP speech coders (optionally using the ER bitstream syntax), the low-delay AAC coder and the Text-to-Speech interface TTSI.
7. The Natural Audio Profile contains all natural audio coding tools available in MPEG-4, but not the synthetic ones.
8. The Mobile Audio Internetworking Profile (MAUI) contains the low-delay and scalable AAC object types including TwinVQ and BSAC. This profile is intended to extend communication applications using non-MPEG speech coding algorithms with high quality audio coding capabilities.

I Graphics Profile

Graphics Profiles define which graphical and textual elements can be used in a scene. These profiles are defined in the Systems part of the standard:

1. **Simple 2-D Graphics Profile** The Simple 2-D Graphics profile provides for only those graphics elements of the BIFS tool that are necessary to place one or more visual objects in a scene.
2. **Complete 2-D Graphics Profile** The Complete 2-D Graphics profile provides two-dimensional graphics functionalities and supports features such as arbitrary two-dimensional graphics and text, possibly in conjunction with visual objects.
3. **Complete Graphics Profile** The Complete Graphics profile provides advanced graphical elements such as elevation grids and extrusions and allows creating content with sophisticated lighting. The Complete Graphics profile enables applications such as complex virtual worlds that exhibit a high degree of realism.
4. The **3D Audio Graphics Profile** sounds like a contradictory in terms, but really isn’t. This profile does not propose visual rendering, but graphics tools are provided to define the acoustical properties of the scene (geometry, acoustics absorption, diffusion, transparency of the material). This profile is used for applications that do environmental spatialization of audio signals. (See Section 12.1.7)

I1. Profiles under Definition or Consideration

The following profiles were under development at the time of writing this Overview; their inclusion in the standard was highly likely, but not guaranteed.

5. The Simple 2D+Text profile looks like simple 2D, adding the BIFS nodes to display text which can be colored or transparent. Like simple 2D, this is a useful profile for low-complexity audiovisual devices.
6. The Core 2D Profile supports fairly simple 2D graphics and text. Meant for set tops and similar devices, it can do such things as picture-in-picture, video warping for animated advertisements, logos, and so on.
7. The Advanced 2D profile contains tools for advanced 2D graphics. Using it, one can implement cartoons, games, advanced graphical user interfaces, and complex, streamed graphics animations.
8. The X3D Core profile is the only 3D profile that is likely to be added to MPEG-4. It is compatible with Web3D's X3D core profile under development [Web3D], and it gives a rich environment for games, virtual worlds and other 3D applications.

I2. Scene Graph Profiles

Scene Graph Profiles (or Scene Description Profiles), defined in the Systems part of the standard, allow audiovisual scenes with audio-only, 2-dimensional, 3-dimensional or mixed 2-D/3-D content.

1. The Audio Scene Graph Profile provides for a set of BIFS scene graph elements for usage in audio only applications. The Audio Scene Graph profile supports applications like broadcast radio.
2. The Simple 2-D Scene Graph Profile provides for only those BIFS scene graph elements necessary to place one or more audio-visual objects in a scene. The Simple 2-D Scene Graph profile allows presentation of audio-visual content with potential update of the complete scene but no interaction capabilities. The Simple 2-D Scene Graph profile supports applications like broadcast television.
3. The Complete 2-D Scene Graph Profile provides for all the 2-D scene description elements of the BIFS tool. It supports features such as 2-D transformations and alpha blending. The Complete 2-D Scene Graph profile enables 2-D applications that require extensive and customized interactivity.
4. The *Complete* Scene Graph profile provides the complete set of scene graph elements of the BIFS tool. The Complete Scene Graph profile enables applications like dynamic virtual 3-D world and games.
5. The *3D Audio* Scene Graph Profile provides the tools three-dimensional sound positioning in relation either with acoustic parameters of the scene or its perceptual attributes. The user can interact with the scene by changing the position of the sound source, by changing the room effect or moving the listening point. This Profile is intended for usage in audio-only applications.

I2.1 Profiles under definition

At the time of writing, the following profiles were likely to be defined:

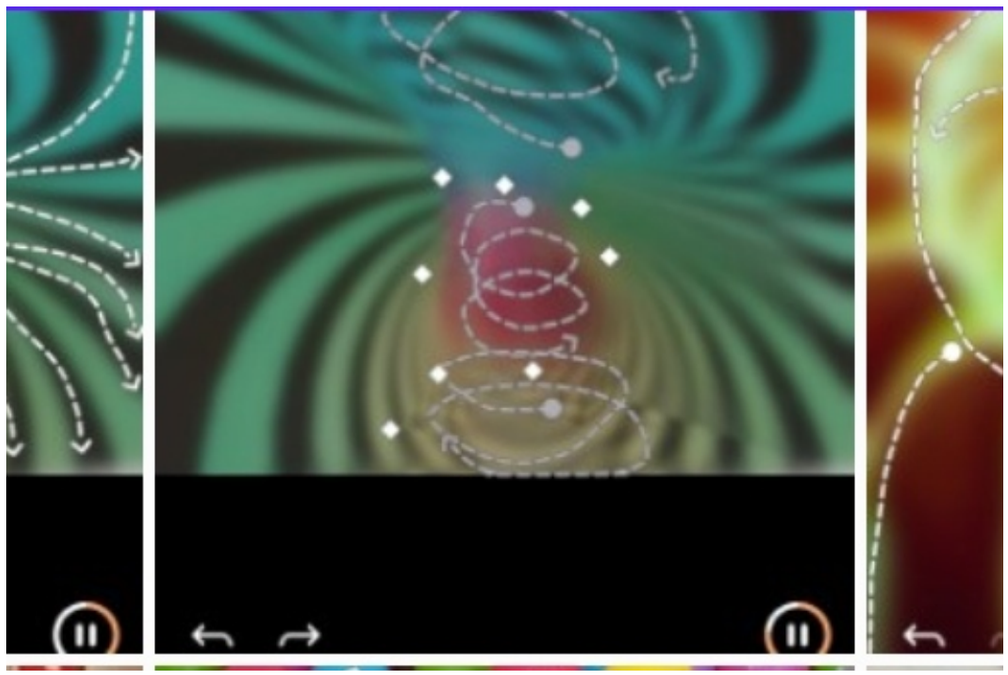
6. The *basic 2D* profile provides basic 2D composition for very simple scenes with only audio and visual elements. Only basic 2D composition and audio and video nodes interfaces are included. These nodes are required to put an audio or a video object in the scene.
7. The *Core 2D* profile has tools for creating scenes with visual and audio objects using basic 2D composition. Included are quantization tools, local animation and interaction, 2D texturing, Scene tree updates, and the inclusion of subscenes through weblinks. Also included are interactive service tools (ServerCommand, MediaControl, and MediaSensor), to be used in video-on-demand services.
8. The *Advanced 2D* profile forms a full superset of the basic 2D and core 2D profiles. It adds scripting, the PROTO tool, BIF-Anim for streamed animation, local interaction and local 2D composition as well as advanced audio.
9. The *Main 2D* profile adds the FlexTime model to Core 2D, as well as Layer2D and WorldInfo nodes and all input sensors. This profile was designed to be an interoperability point with tSMIL (see [SMIL]). It provides a very rich set of tools for highly interactive applications on, e.g., the World Wide Web. This name might still change.
10. The *X3D core* profile was designed to be a common interworking point with the Web3D specifications [Web3D] and the MPEG-4 standard. The same profile is will be in a Web3D specification. It includes the nodes for an implementation of 3D applications on a low-footprint engine, reckoning with the limitations of software renderers.

J. MPEG-J Profiles

Two MPEG-J Profiles exist: Personal and Main:

1. Personal - a lightweight package for personal devices.
   The personal profile addresses a range of constrained devices including mobile and portable devices. Examples of such devices are cell video phones, PDAs, personal gaming devices. This profile includes the following packages of MPEG-J APIs:
   1. Network
   2. Scene
   3. Resource

2. Main - includes all the MPEG-J API's.
   The Main profile addresses a range of consumer devices including entertainment devices. Examples of such devices are set top boxes, computer based multimedia systems etc. It is a superset of the Personal profile. Apart from the packages in the Personal profile, this profile includes the following packages of the MPEG-J APIs:
   4. Decoder
   5. Decoder Functionality
   6. Section Filter and Service Information



Chapter 1: Experimental Design of Motion Graphics.

Path Animation is the process of animating one or more objects moving along a defined two-dimensional path through the imagery scene. The path is also motion path or motion graphics. This is about creating animated path with a single image for the purpose of making video outputs for movie enjoyment. This is done with a commercial tool MotionLeap Pro on Android Mobile phone.

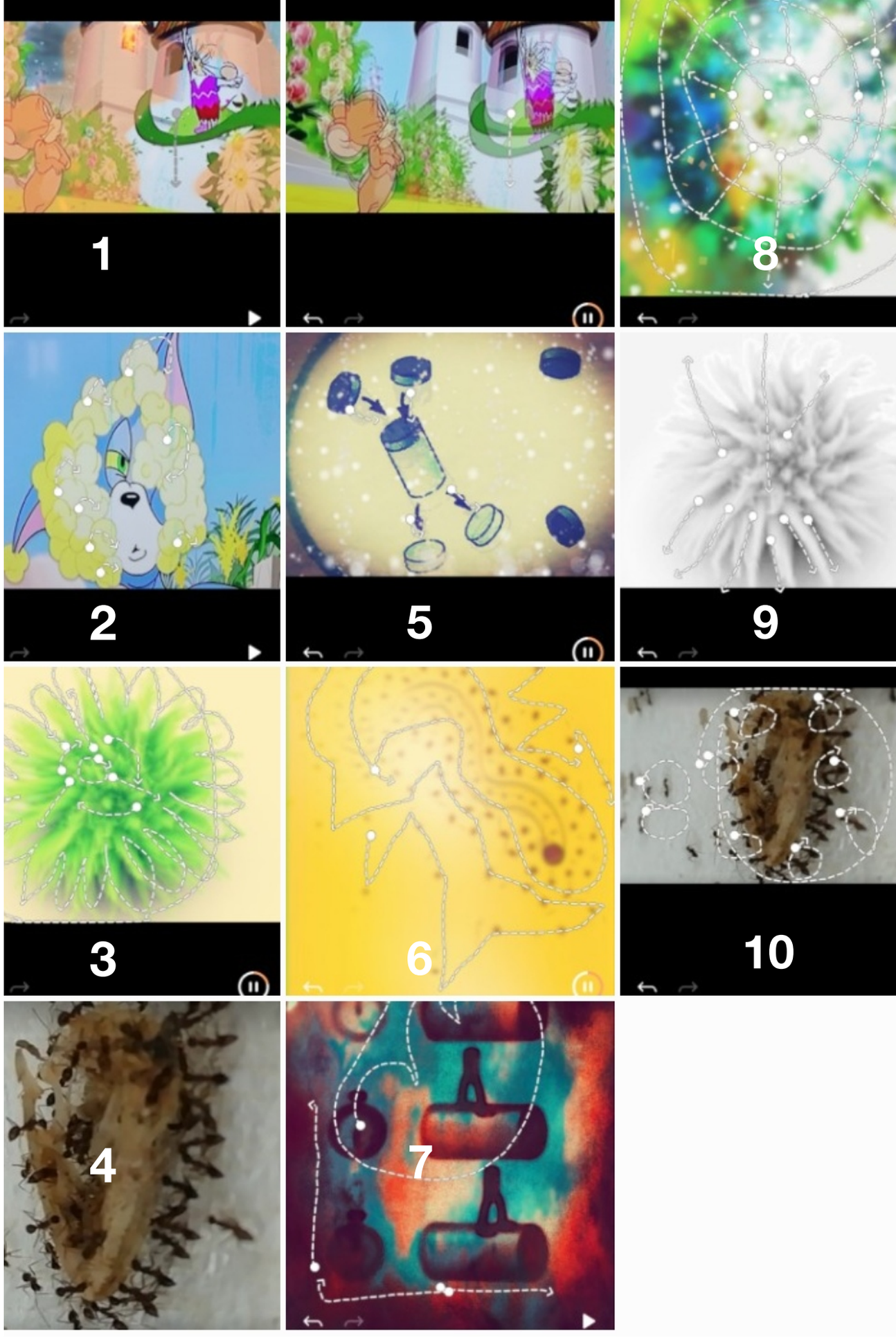
Grid View of 10 Motion Graphics

1. This is a classic Tom and Jerry cartoon movie. Image was captured with a camera on TV during preview.

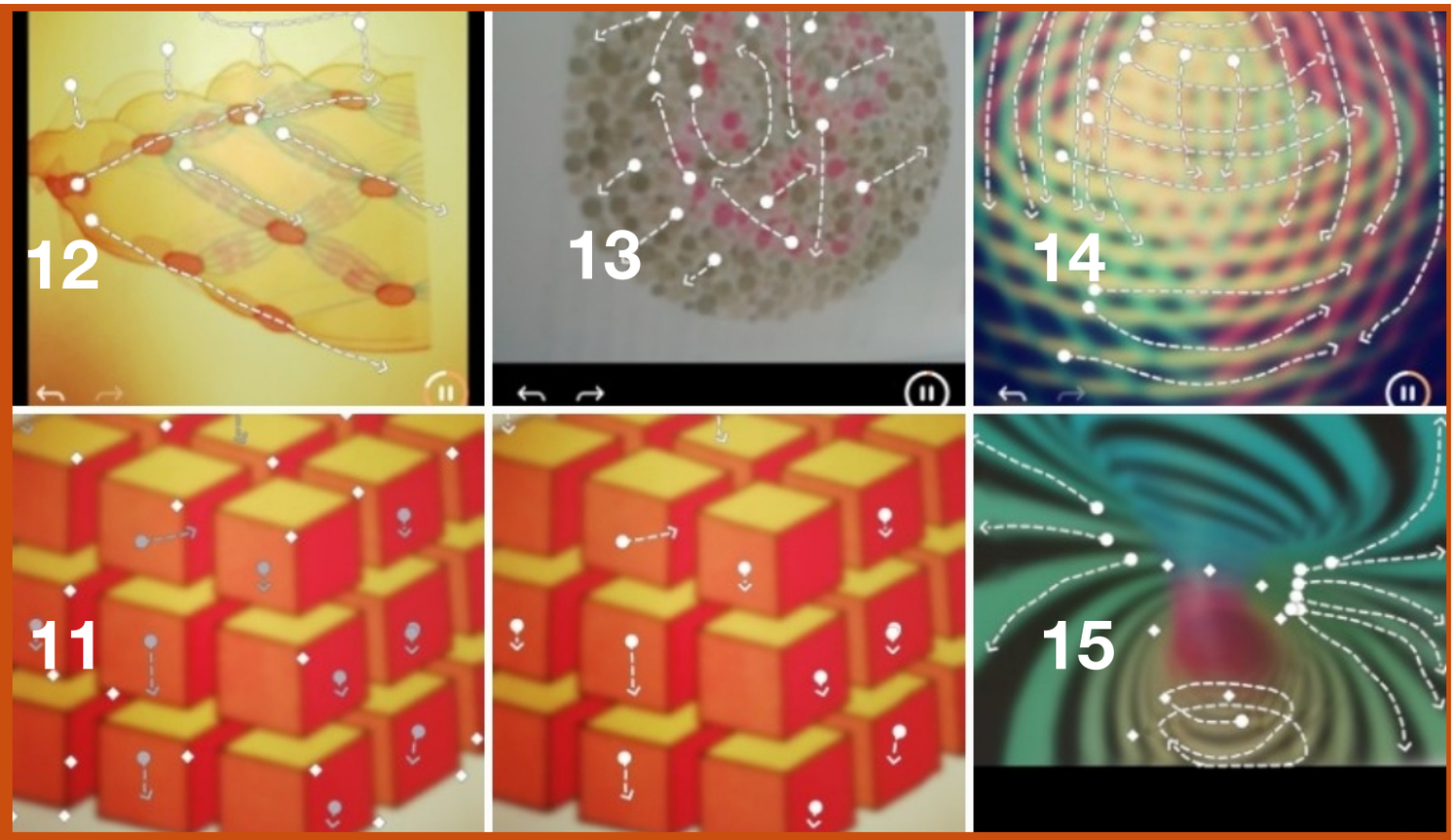
2. This image Jerry has a foamy face. Dotted paths are made on the face area.

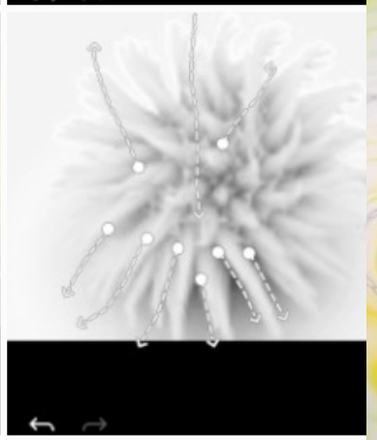
3. This is an image of a virus. It' path is along the edges of the viral shape with some inner dotted paths.

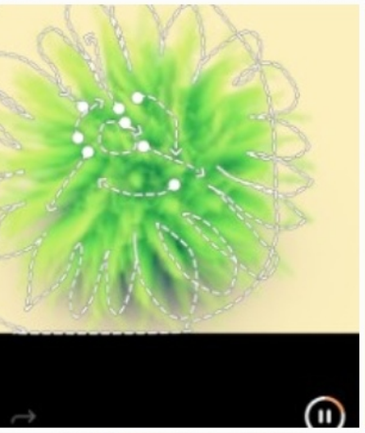
4. This image is biologically inspired and it is made from a camera capture.

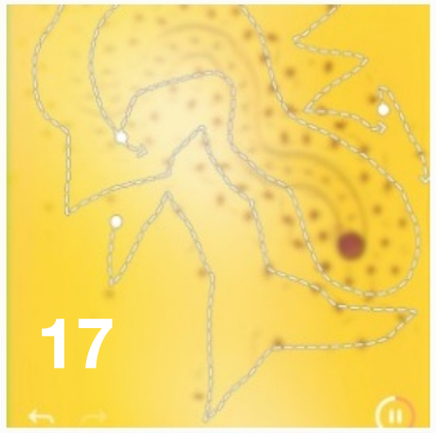


- Motion picture 11 has many cubes or boxes arranged on top of the other with small off-distance.
- Motion picture 12 is also a biologically inspired.
- Motion picture 13 is a dotted circular shape of about more than three colours mainly pink, dark green and other colours.
- Here, motion picture 14 is alike a spinning globe of many horizontal spins and verticals spins.
- On motion picture 15,Top Conical spins separated with a pink cone to another Many conical spins at the bottom.





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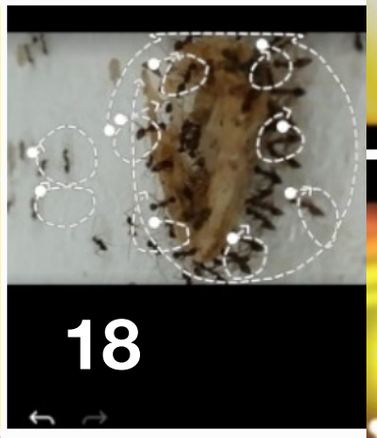
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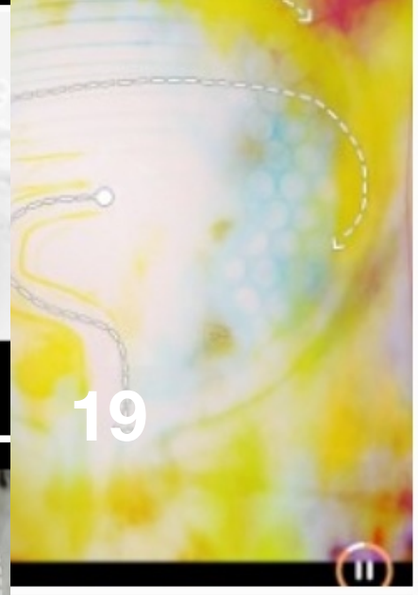
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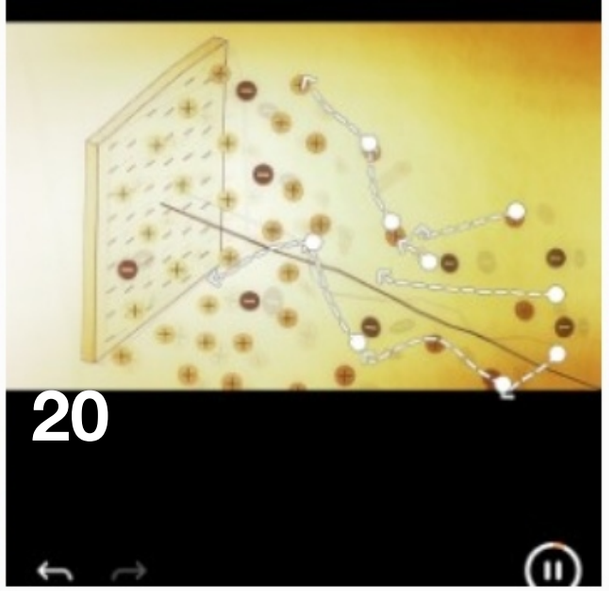
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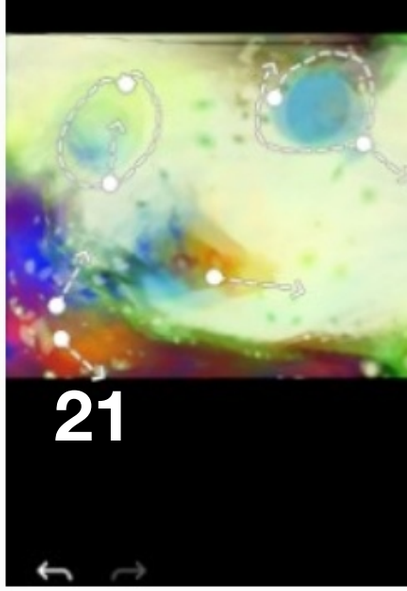
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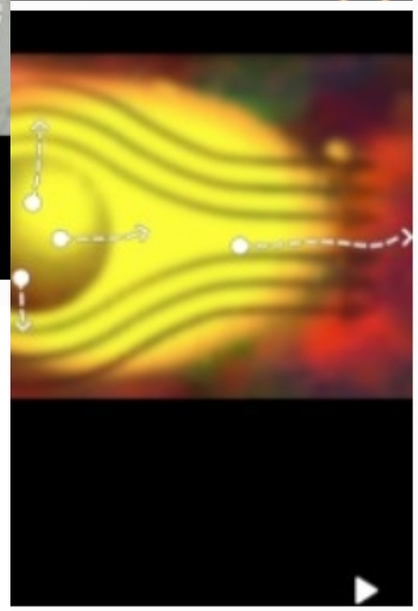

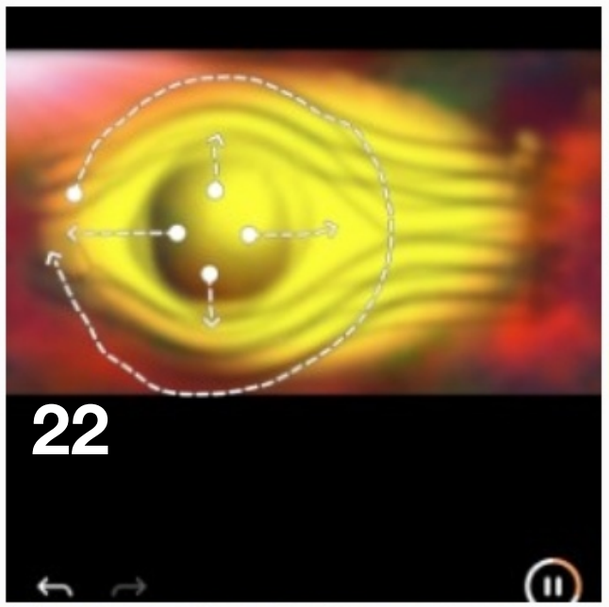
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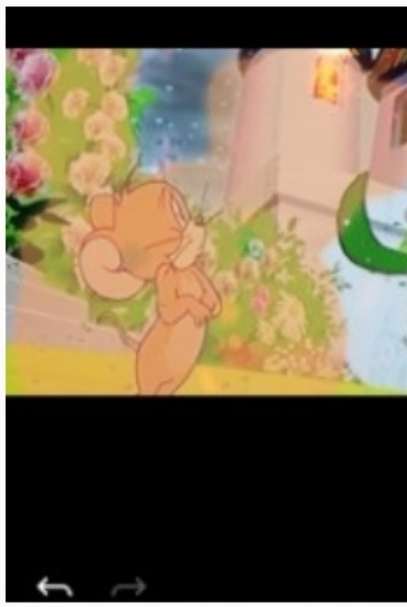
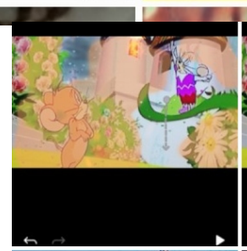
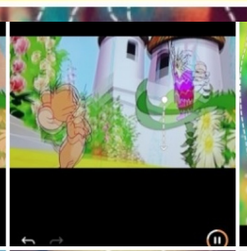
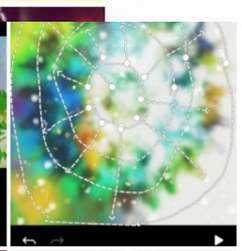
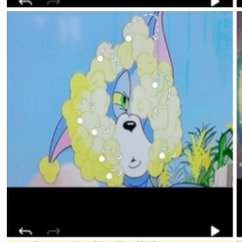
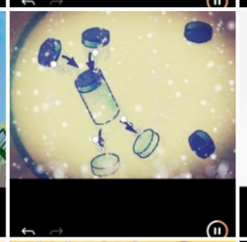


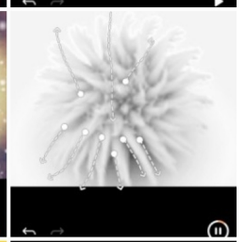


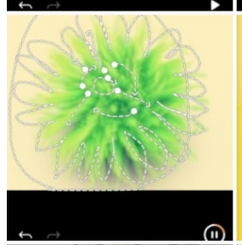


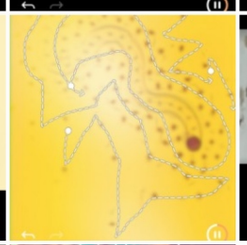


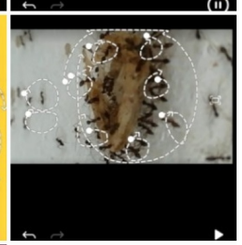


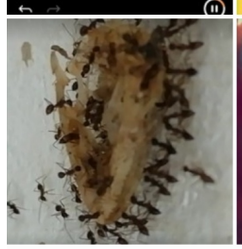


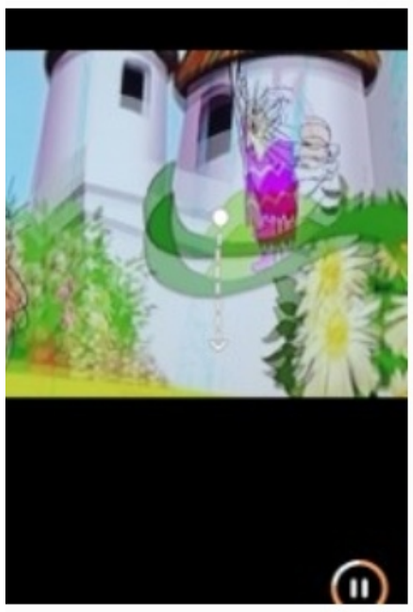






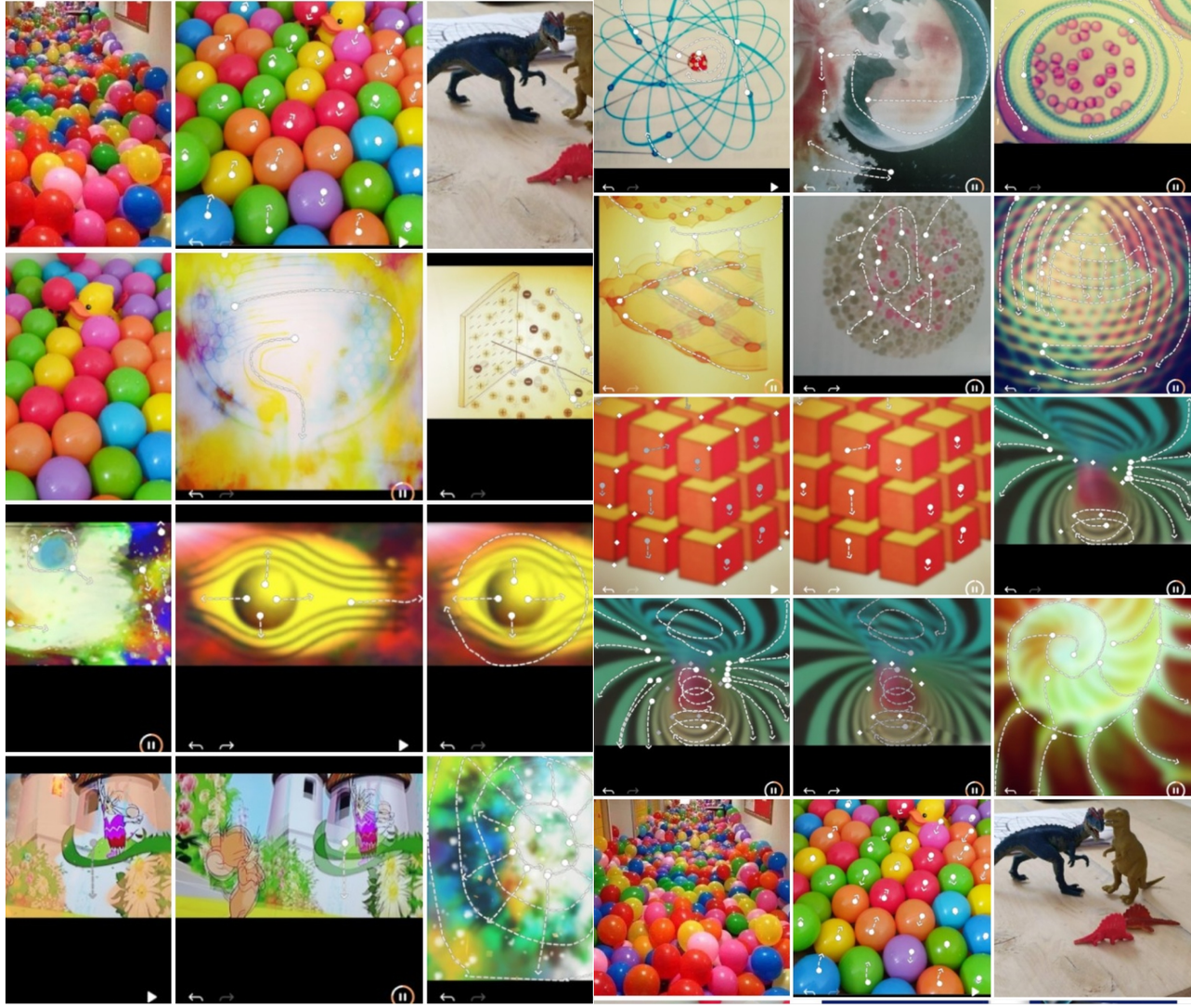


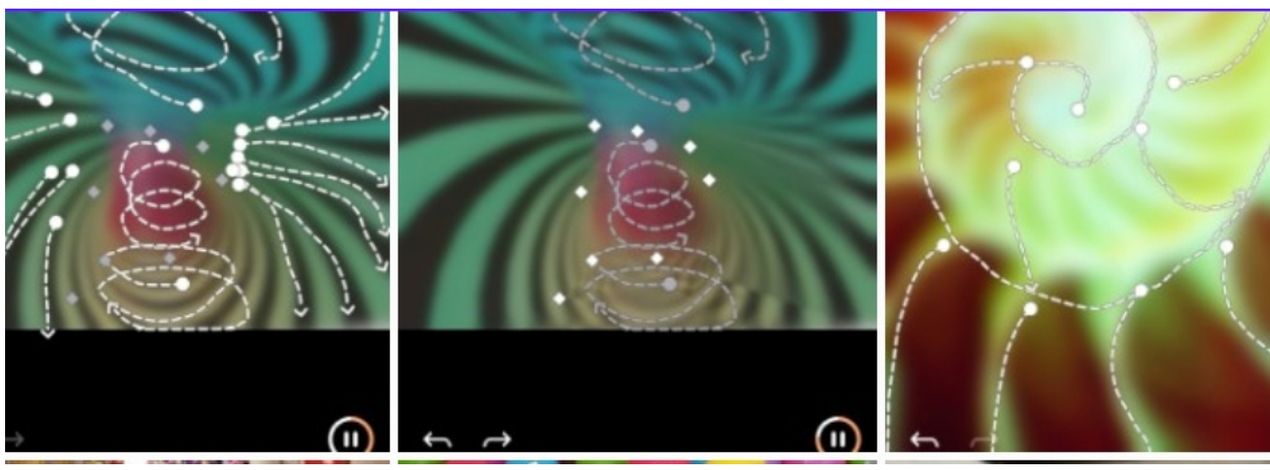


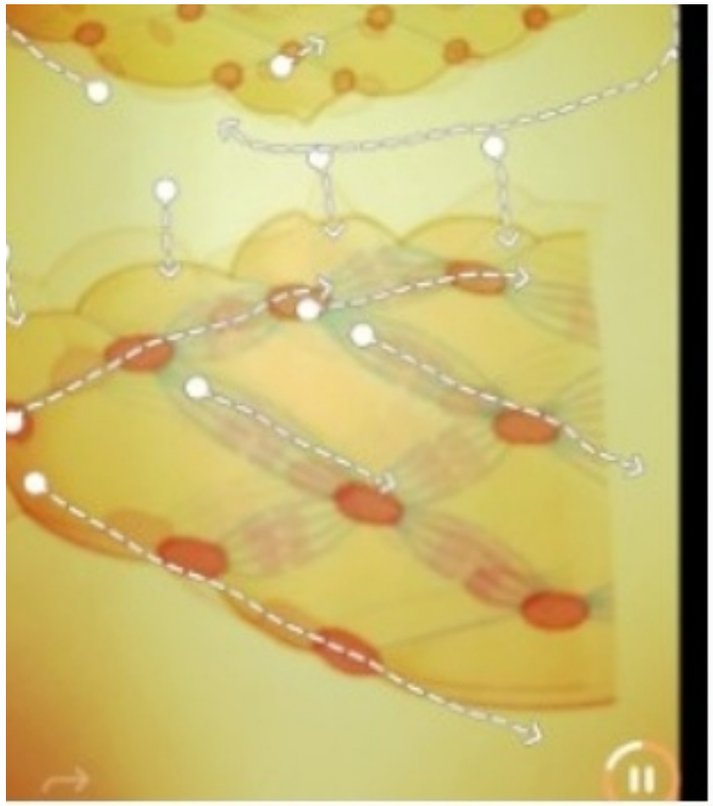


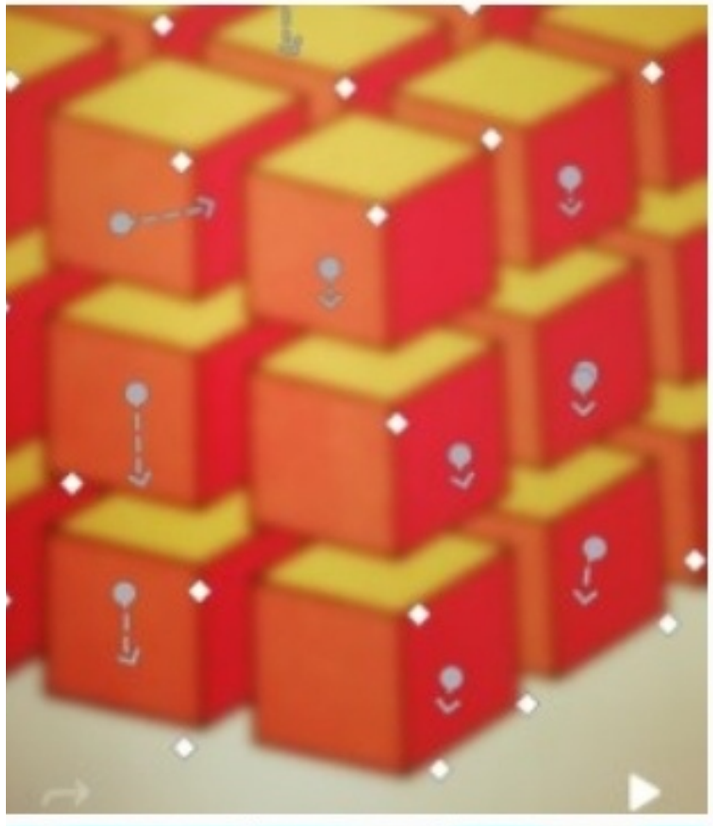
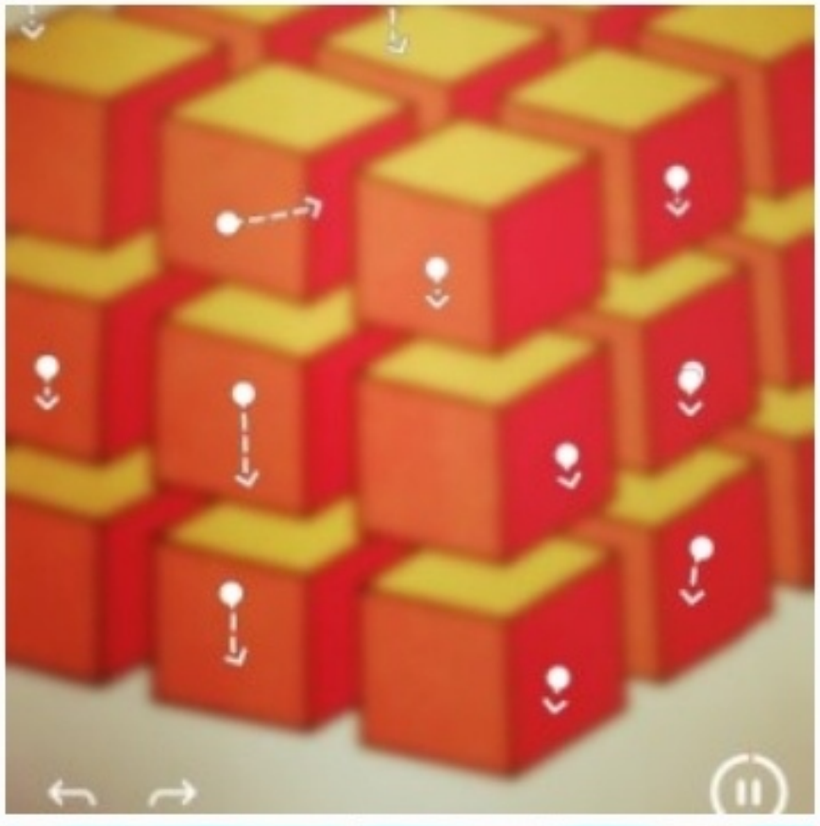
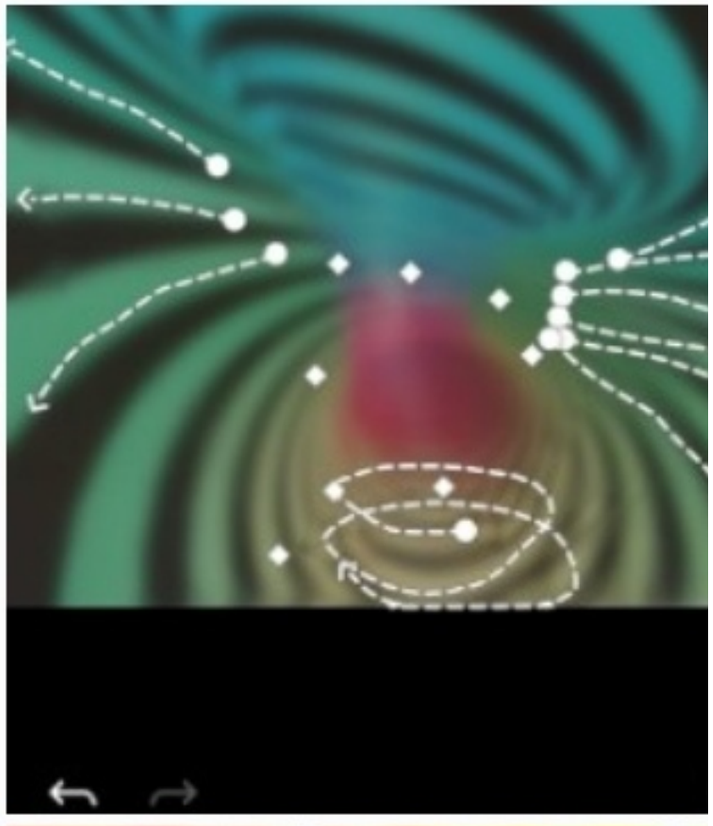
23

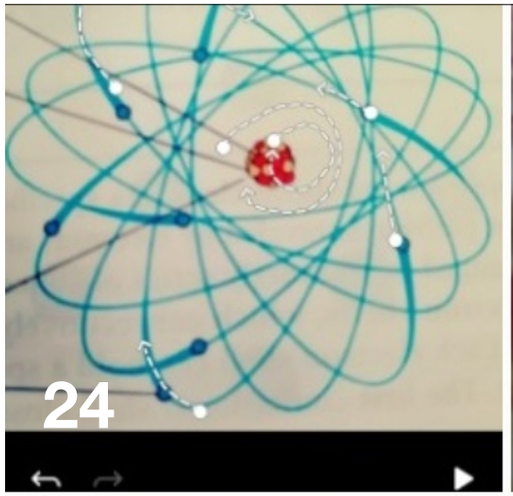
A LOOK AT MANY MOTION GRAPHICS.

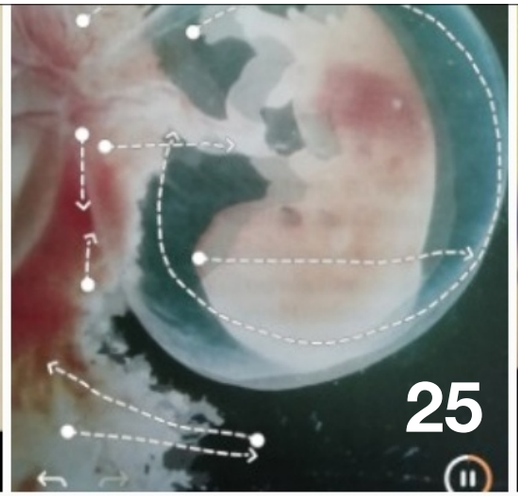


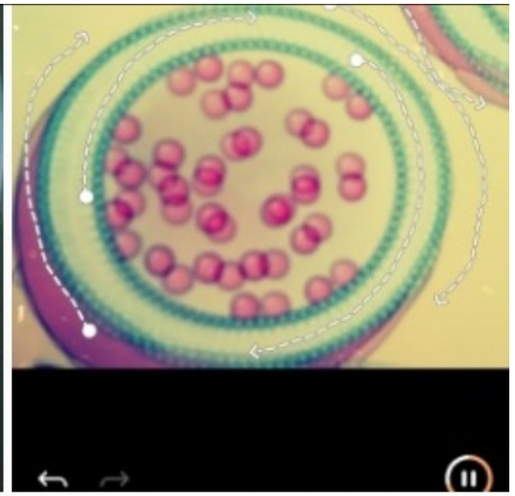


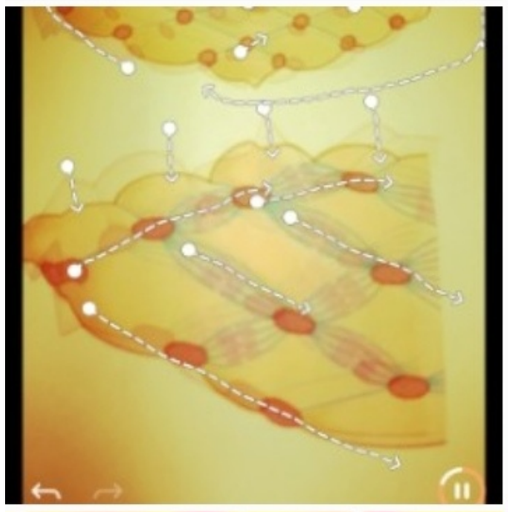


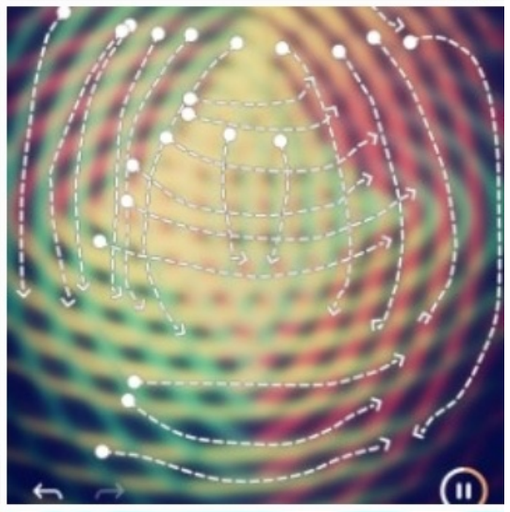








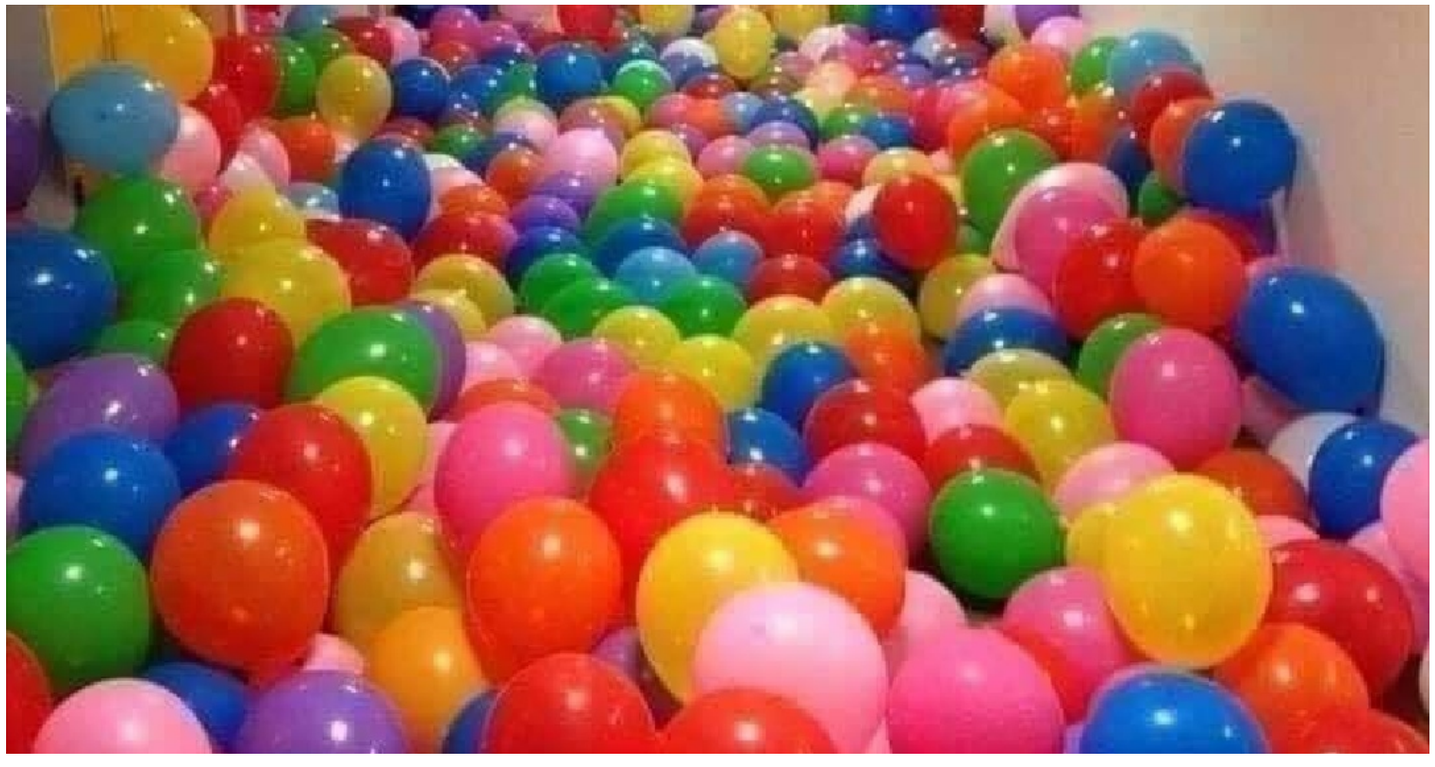


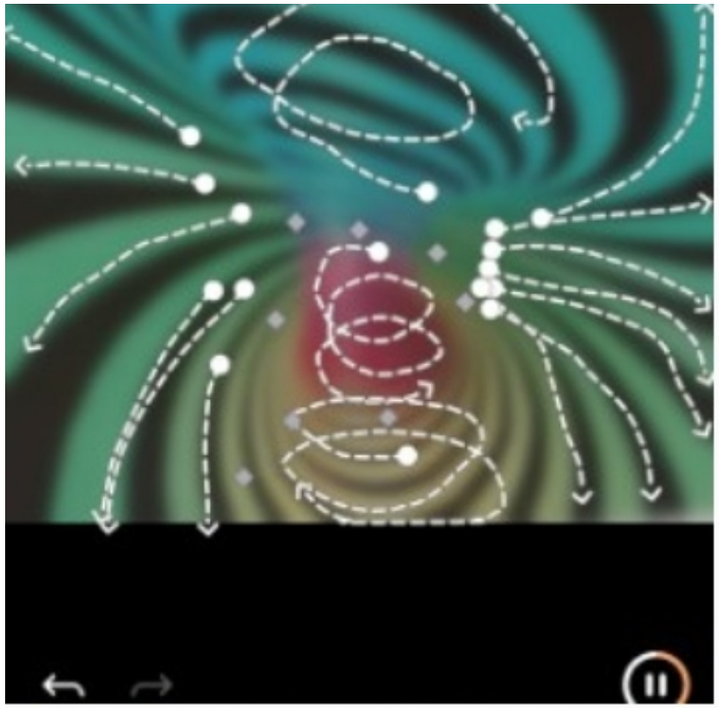


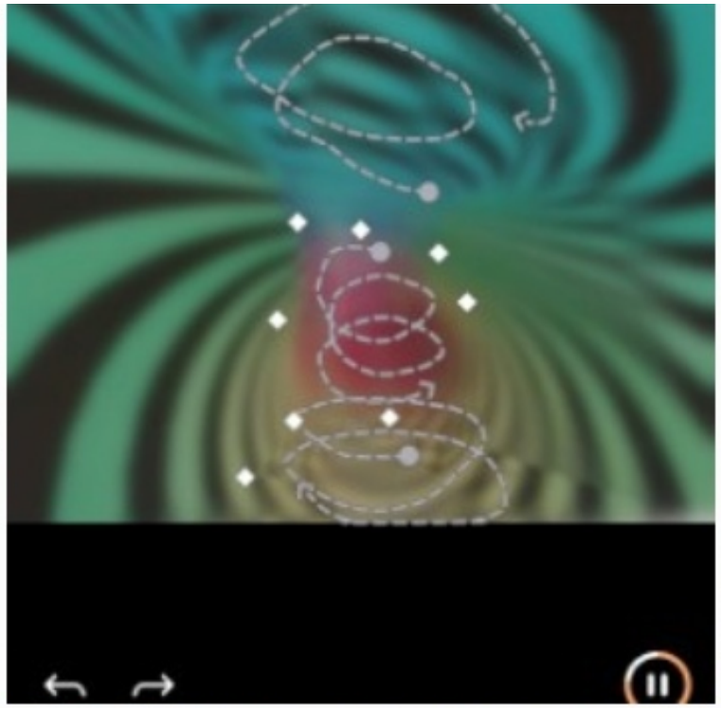


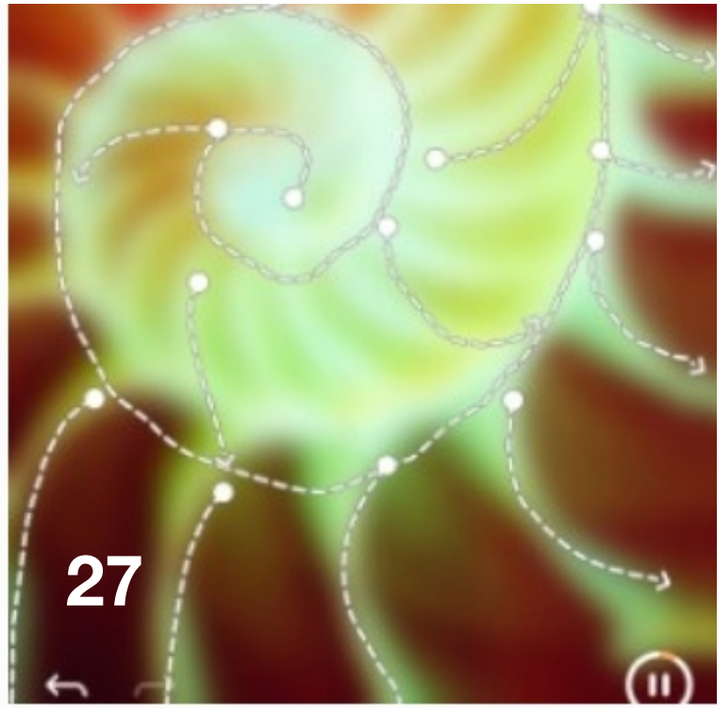
25: This looks like a baby foetus in the womb of a woman. This is the best motion picture in the overall project of animation video. There are about 8 animation path on the motion picture to generate the desire video output.

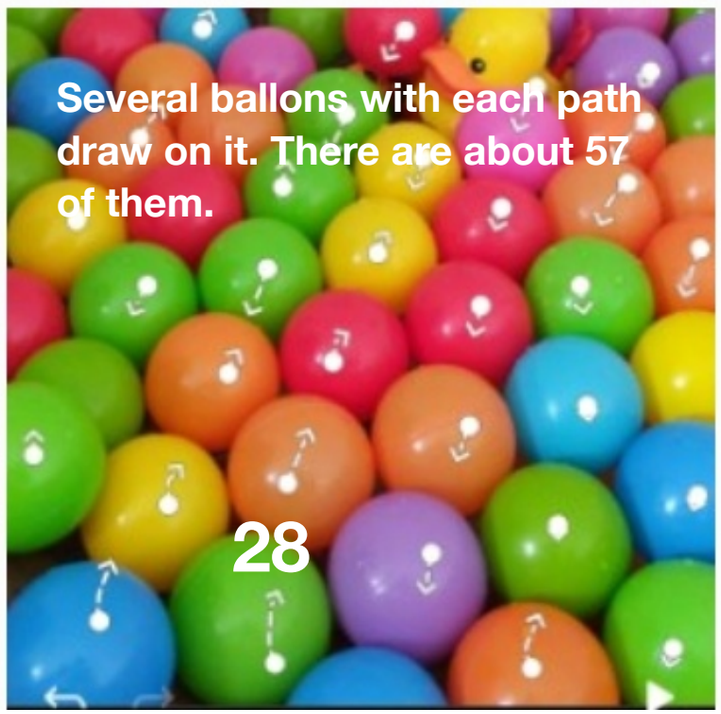
24: Motion picture is about Atomic spins on a centred pink matter. 5 dotted paths for this image.








27


Several ballons with each path draw on it. There are about 57 of them.
28

Chapter 3:

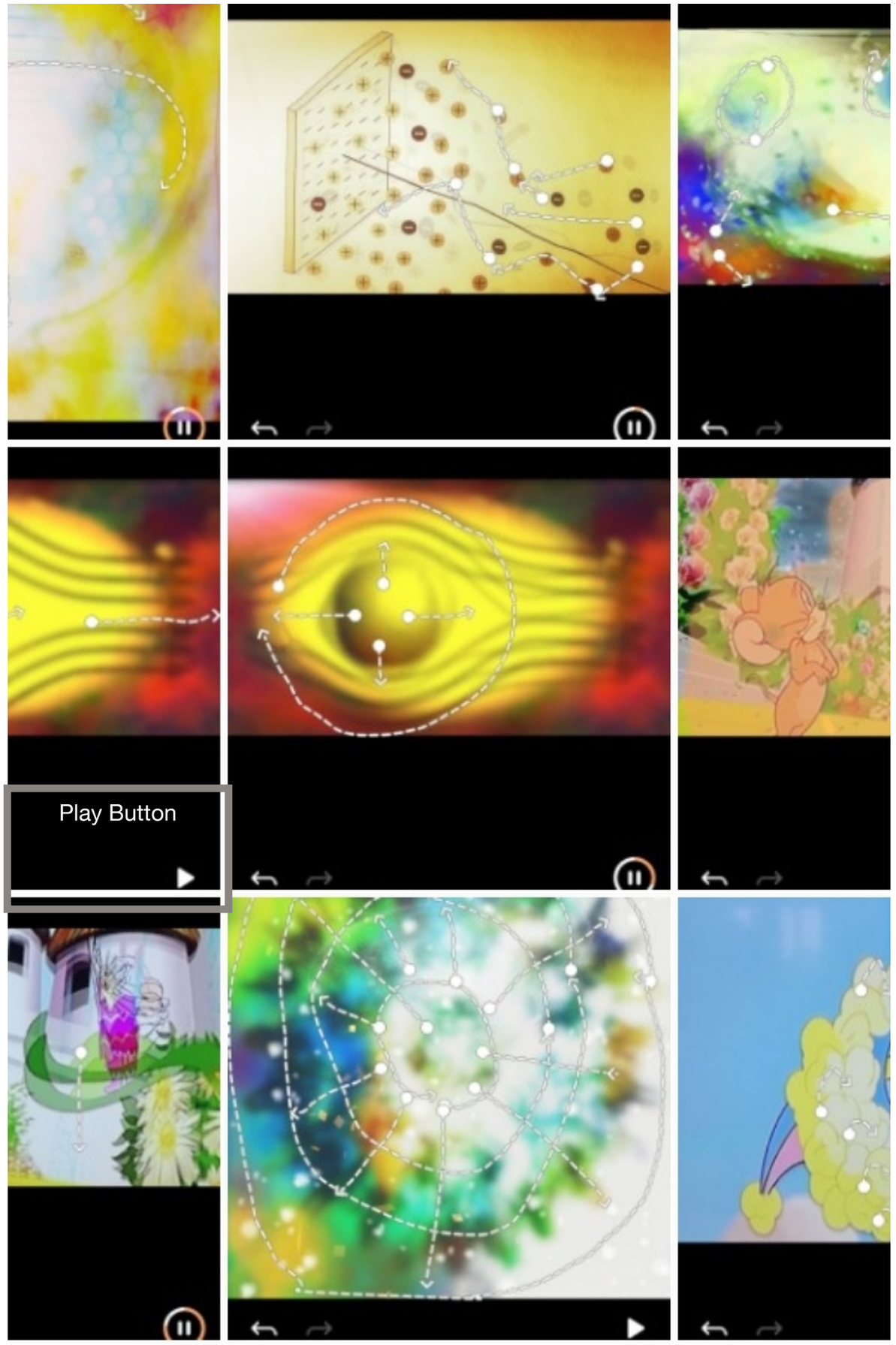
Motion Pictures and Play Media Objects.

1. A list of media objects of motion pictures are enumerated in this work.

2. This list is illustrated as an image from the computer generated scene.

3. A brief description of each picture is made.

4. Let have a look at them before knowing where they are stored.



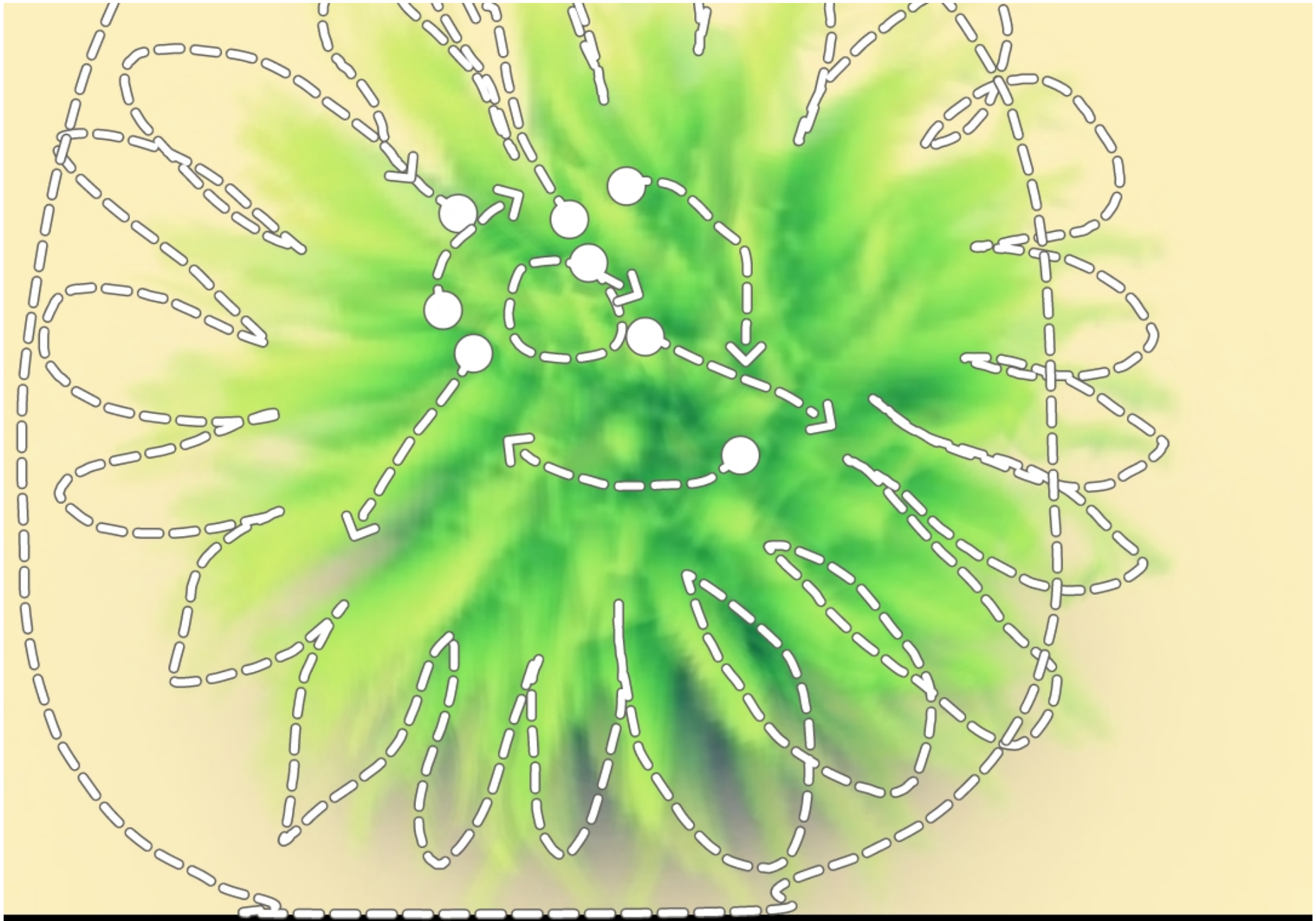
List of Motion Pictures and Plays.

1. Tom and Jerry Scene.
2. Jerry Foamy Face.
3. Viral Body.
4. Ant Swarm Carrying Vector Food.
5. Cylindrical Volumen and Tablets.
6. Triple Clocked Feet
7. Super-hot Earth core
8. Electrostatic Fields
9. Colour Balls Duck

Play 1: The video output for this scene is about Tom’s friend jumping up and down on the leave as it points into the sky.

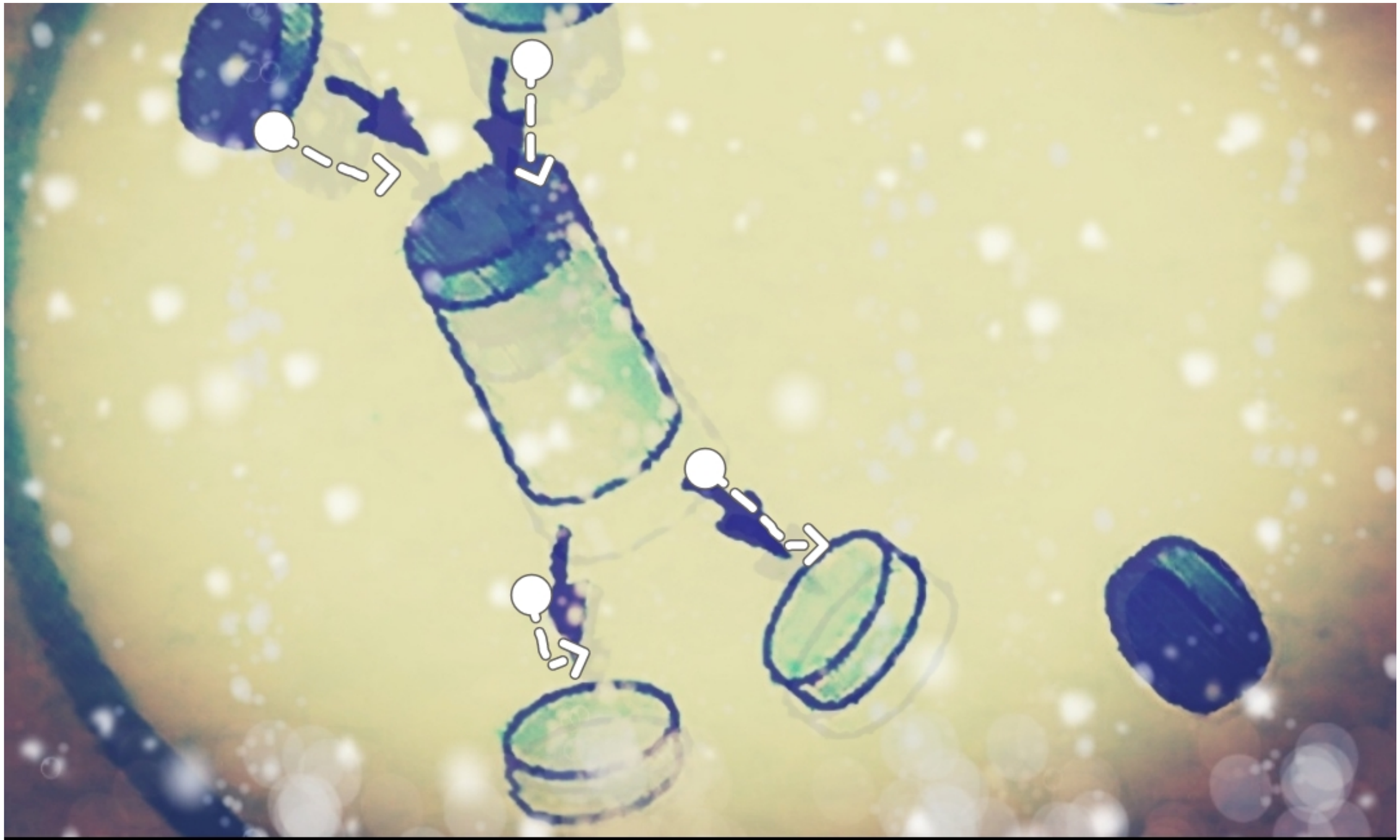
Play Description

Play 2: The video output for this scene is about Jerry having foam rub around its face.



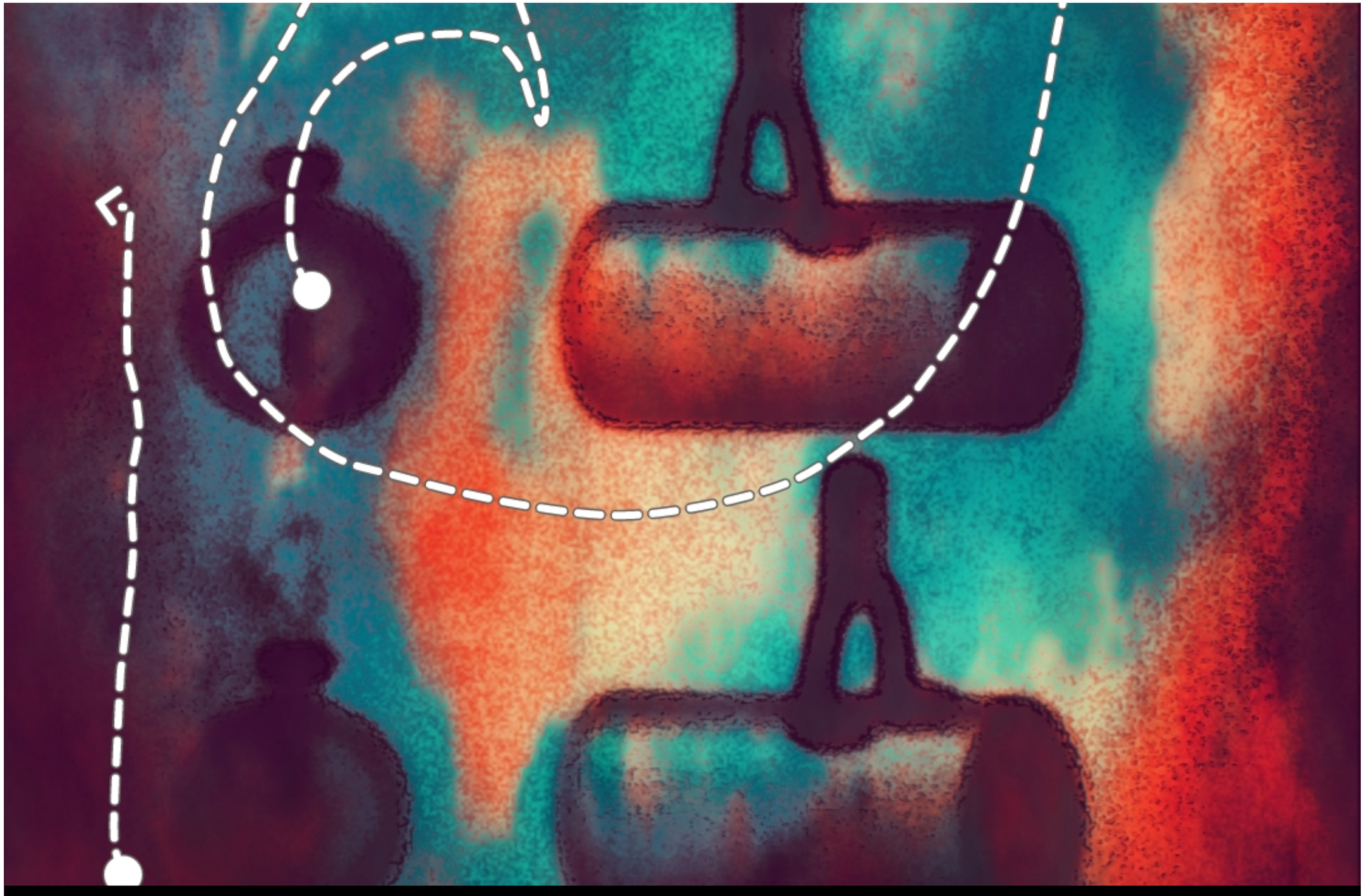
Play 3: The video output for this scene is about the viral body’s liveness showing its activation.

Play 4: The video output for this scene is about ants of more than 44 carrying a leftover baked-food along a wall building at a home.

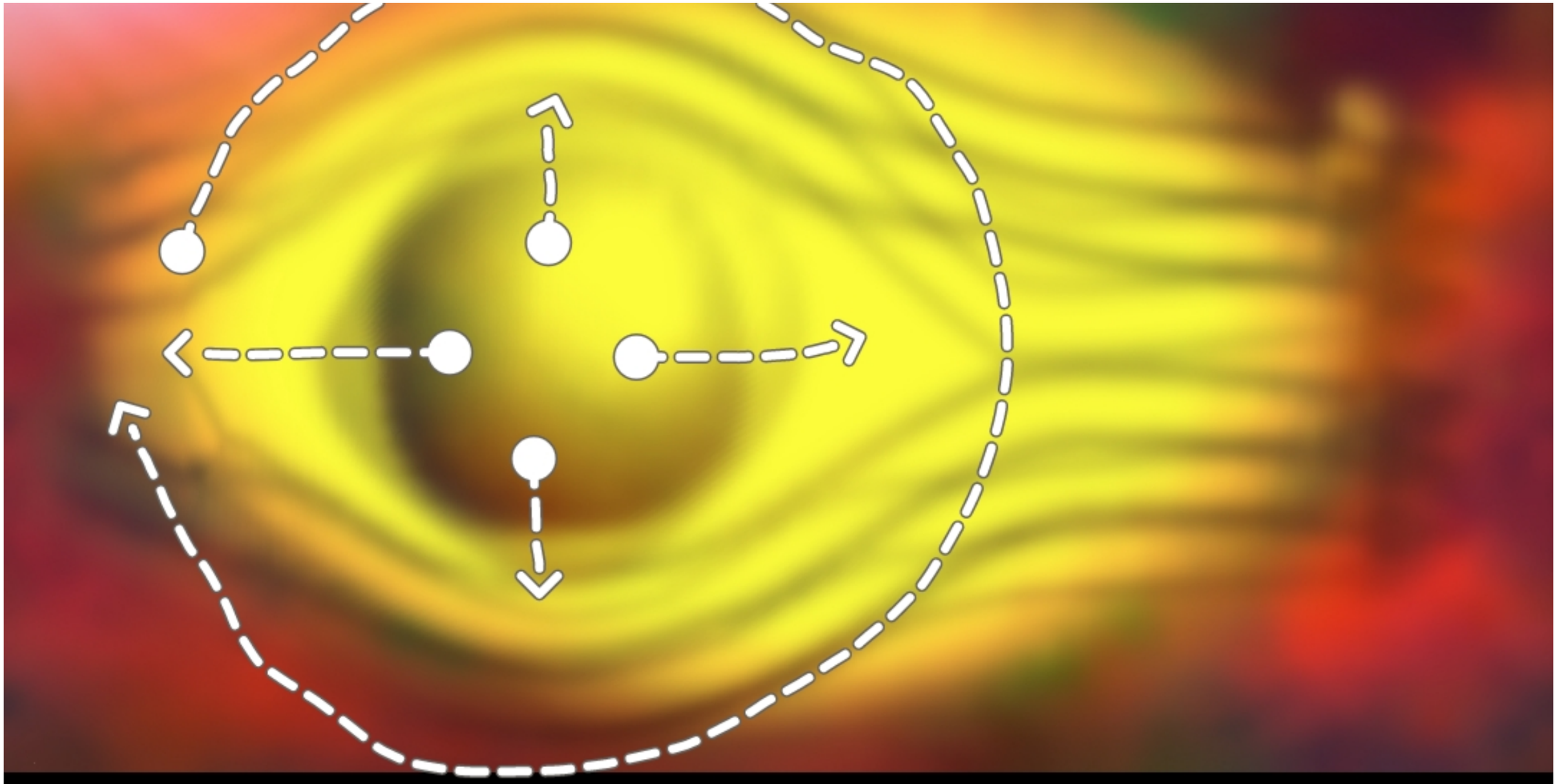


Play 5: This video output is about some six tablets pushing down and up on a cylindrical volume.

Caption

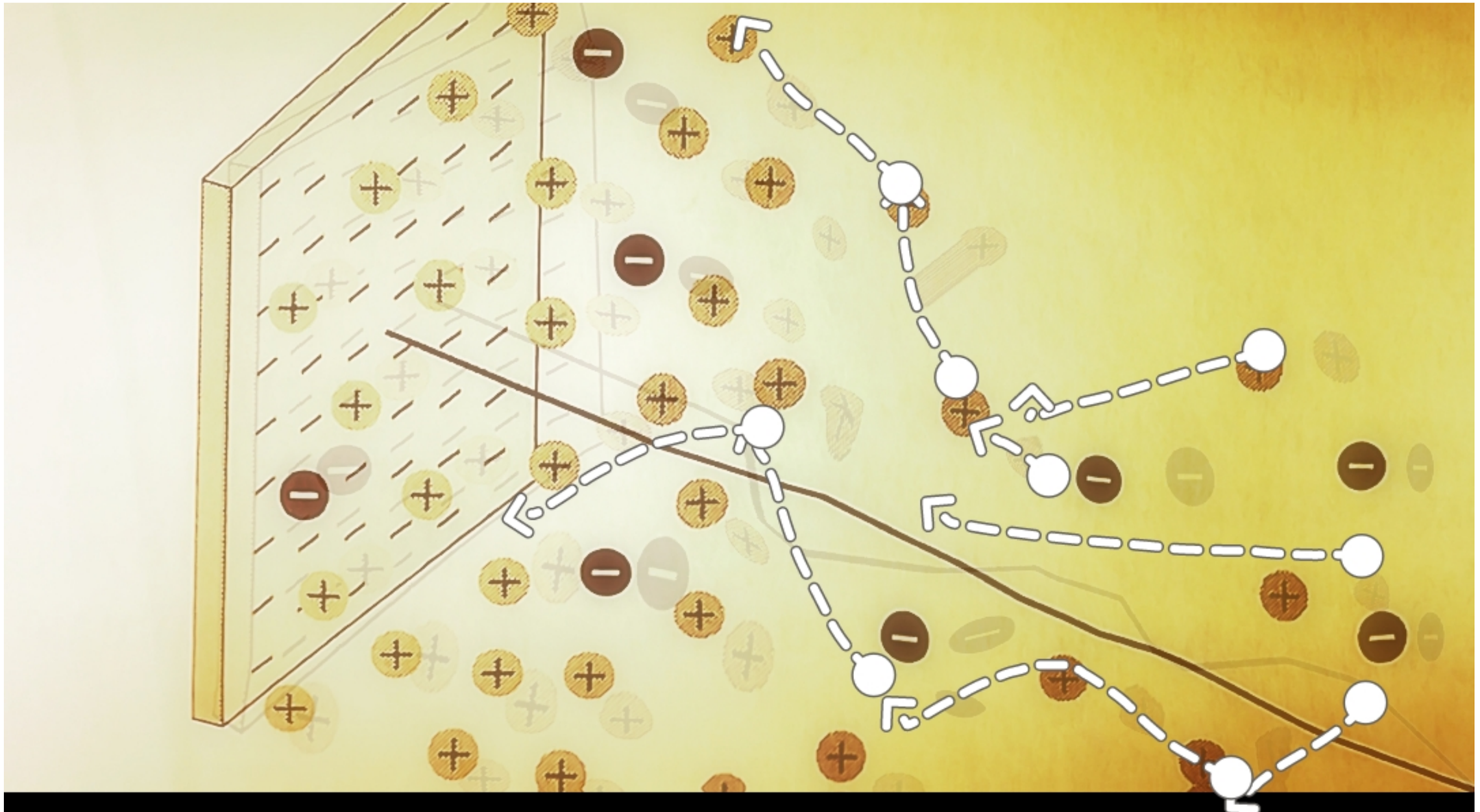


Play 6: This is a video output on three clocks and three headless feet walking on a cylindrical distance.



Play 7: This video output is showing a streamline of hot flare around an earth core in yellow colour and red hot flare.

Caption



Play 8: This output is a video showing a field emitting charge ions from a material plate on applied electricity.

Caption

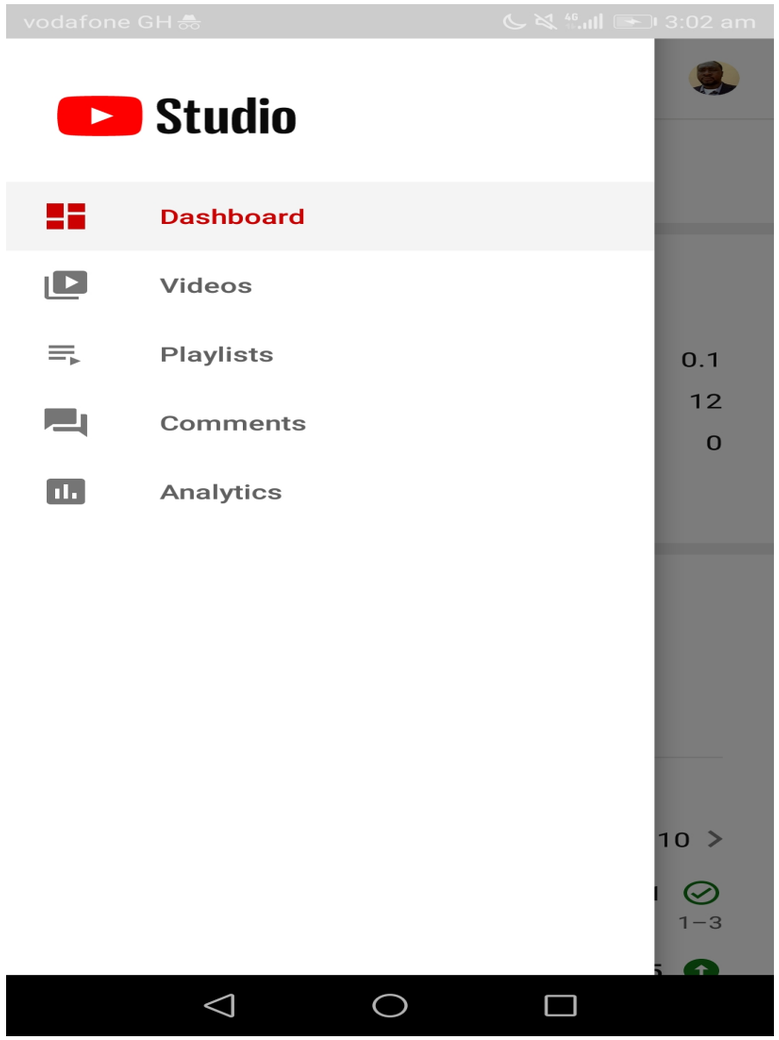
Play 9: This video is about coloured balls animation film made from 34 animated paths.

Chapter 4. Moving Pictures.

YouTube is both a video sharing and social media platform that has a marketplace dimensioned in cyberspace to entertain the urban people. This incubator allows subscribers to develop a consistent and strong perception of all other experiences. Motion development has much greater impact with the focus on online motion picture entertainment. In this work, I will describe the author's involvement in making a motion picture presence in the Hypermedia place.

YouTube is an online video sharing and social media platform owned by Google. Around the world, its users watch more than one billion hours of YouTube videos each day. YouTube creators, popularly referred to as YouTubers, upload over one hundred hours of content per minute. Urban Entertainment is a production that utilises the Internet as an incubator for developing urban-themed film and television projects. Motion Picture Entertainment also acquires exclusive television and Internet rights to independently produced features and short films and licenses such films to exhibitors. This dissertation research is outlined as follows :

(1) Provide a short listing on some video series
(2) Describe the origin of some videos and
(3) Production of videos are also explained.

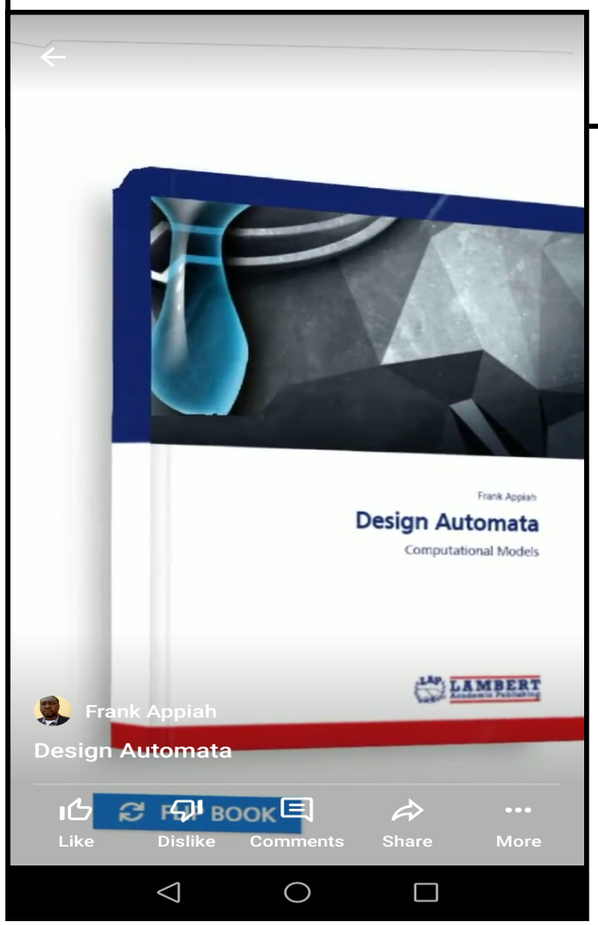


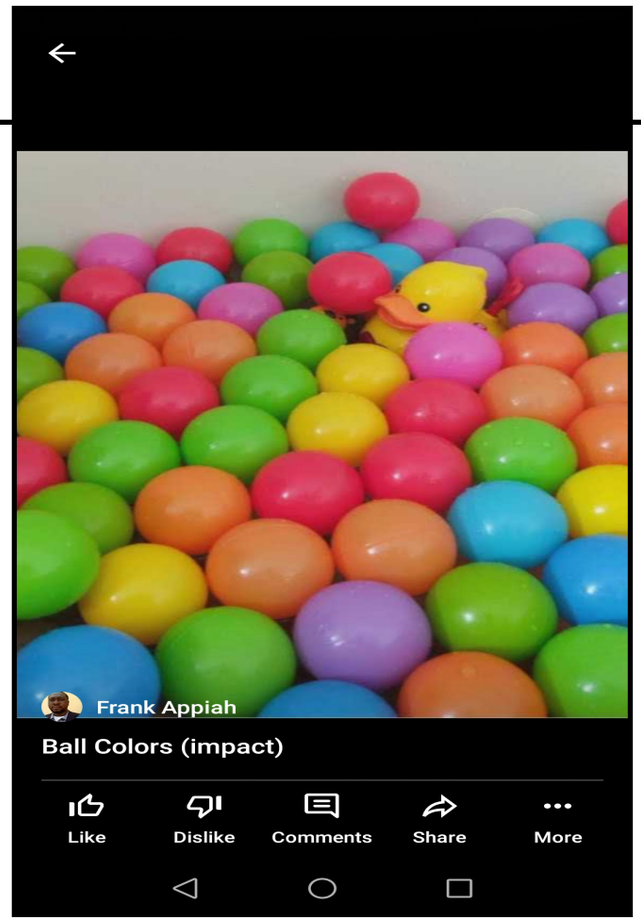
Youtube Incubator.

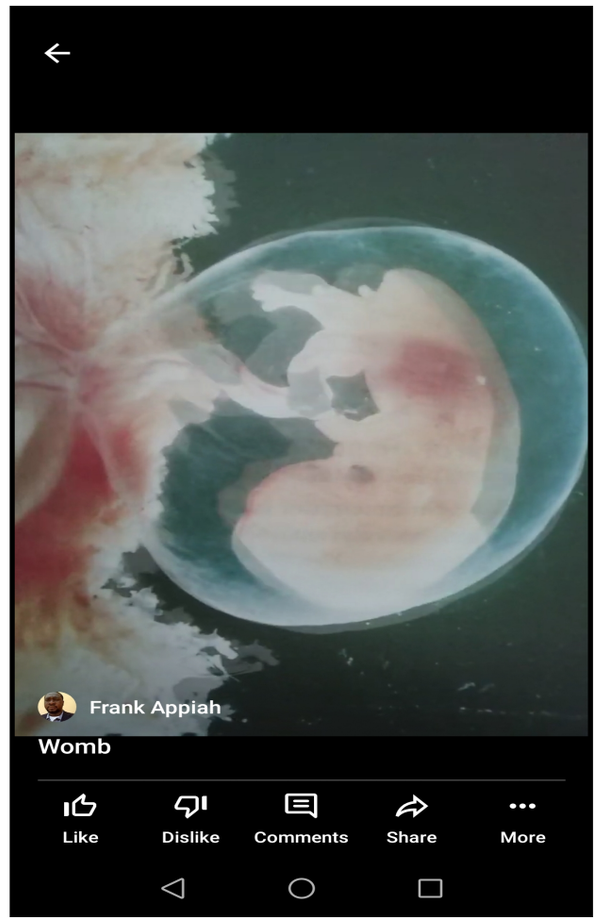
4.1 Motion Picture as Entertainment

Motion picture has much greater impact on the online environment with much focus on entertaining as people live in their urban area or space. With online sharing, urban people can upload countable short videos to their studio channel for many urban users.

Urban day-to-day activities are much of indoor living and watching TV along online motion pictures are a source of urban experience.

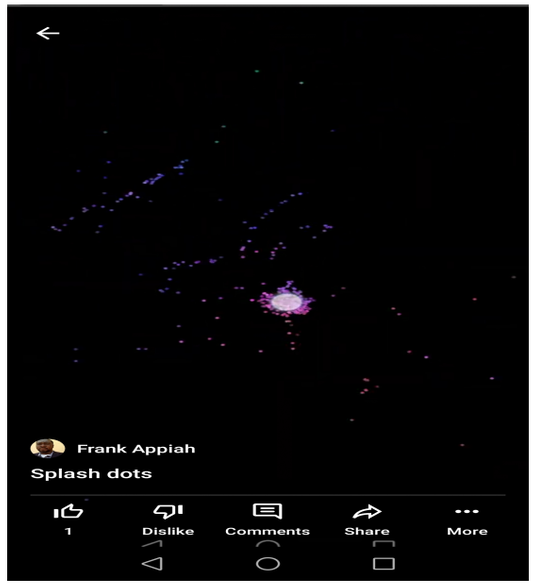


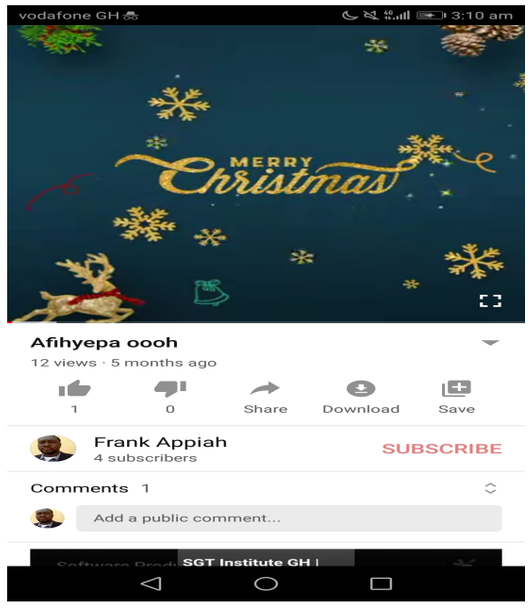




The list of video now showing includes the themes:

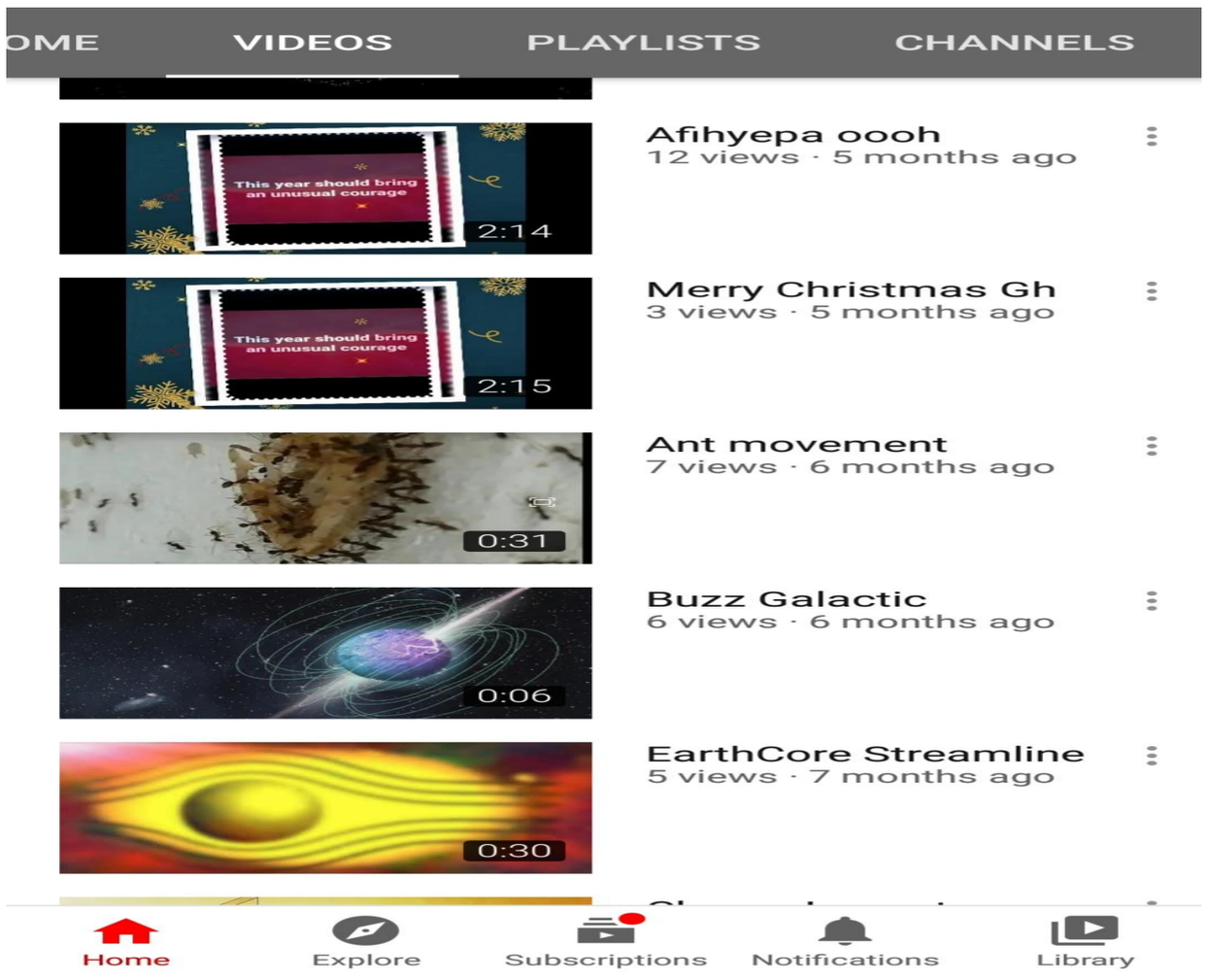
- *Ball Colors (Impact) :* This in particular is about pixel animation of small photo balls of many colors. It was made by a mobile tool called pixaloop. By attaching several directional points on the images, it then animates the selected area or region and several times of it are compiled into video. By exporting from the tool, one creates an mp4 video file for online sharing. It did take into context collision effects as in real life.
- *Womb*: This is a video made in similar ways as the ball colors. Here, we are looking at some kind of living thing and directional breathing needs to simulate the more possible ways as in nature.
- *Design Automata* : This video is made to advertise a book on design Automata. Attachment points are made on the image at the tips so as to make it hover around and swing about back and forth. It is quite something to watch on display. Future presentations of book videos is very important in urban lifetime. Time is long spent indoors so having a book to read is essential to stay in touch with knowledge in the urban environment.



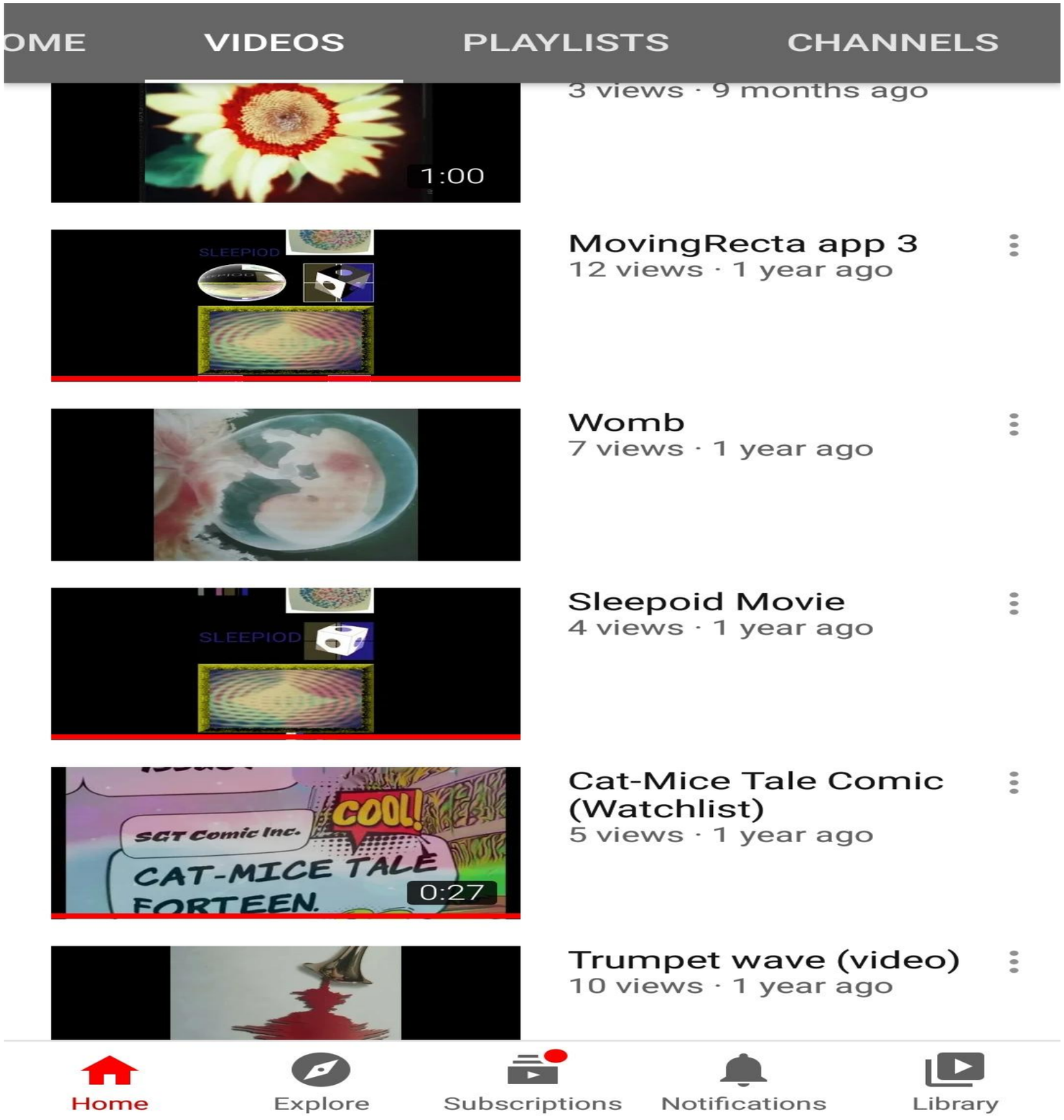


Below are some shots from the screen of YouTube Mobile App:

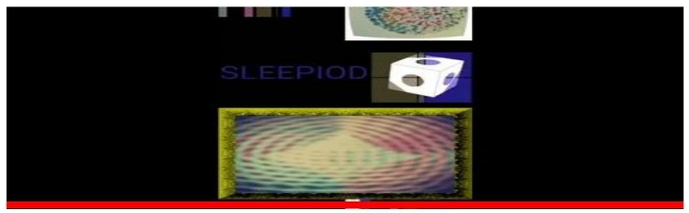
The rest of the videos in the author's YouTube channel are programmed as captured in the Pictorial :



There are about 50 videos in total at the author's YouTube channel. A comment view from a screenshot is shown on the side:



OME VIDEOS PLAYLISTS CHANNELS



Sleepoid Movie
4 views · 1 year ago

Cat-Mice Tale Comic (Watchlist)
5 views · 1 year ago

Trumpet wave (video)
10 views · 1 year ago

Ball Colors (impact)
8 views · 1 year ago

Vaccine Animation
4 views · 1 year ago

LCCompute

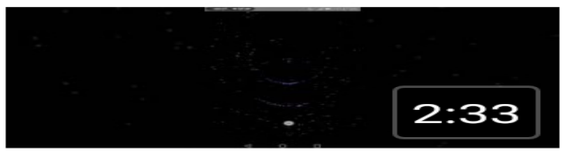
Home Explore Subscriptions Notifications Library

vodafone GH 3:03 am

Dashboard

0

Videos



Splashing 2

1 0 0

Splashing Sound

1 0 0

Forcesplash

3 0 2

VIEW MORE

Comments

1 most recent

Afihyepa oooh

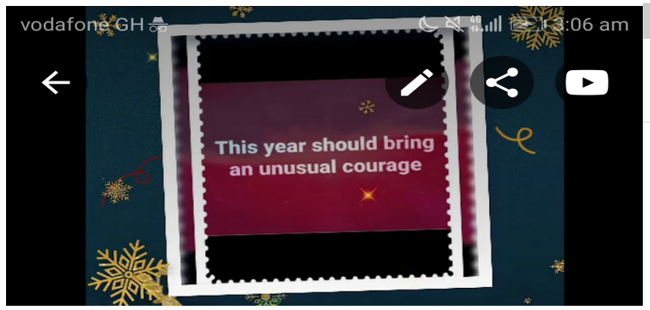
A

Angela Aba Ayensu • 5 months ago

Thank you Kwabena. Merry Christmas

VIEW MORE

On **visual analytics** on the video performance, screenshot are shown as below :



Afihyepa oooh

12 1 1 0

Video performance

First 162 days, 6 hours:

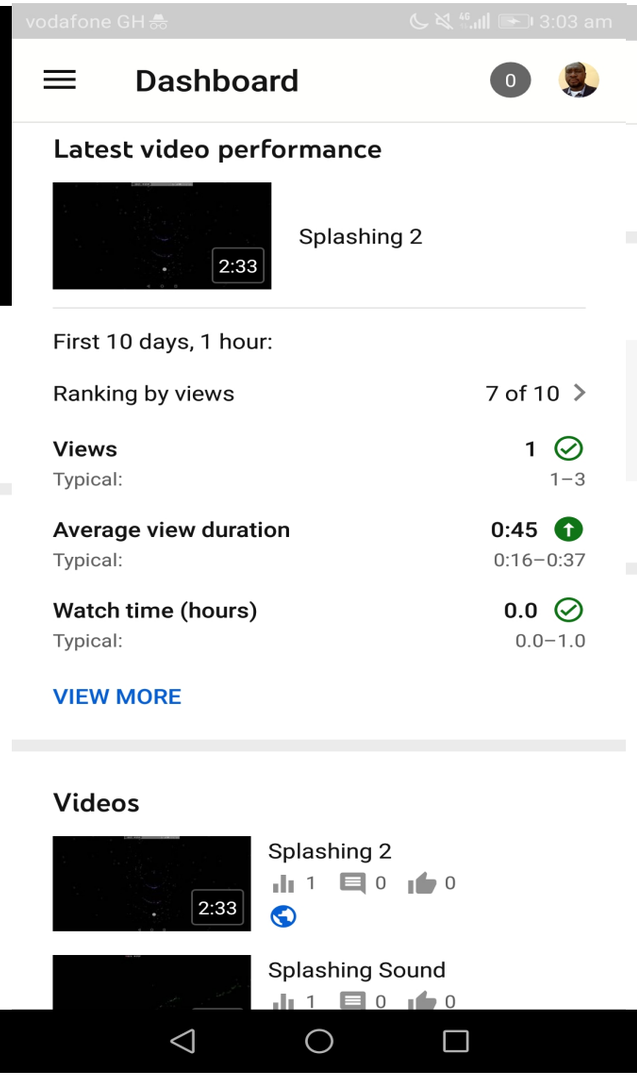
Ranking by views 2 of 10

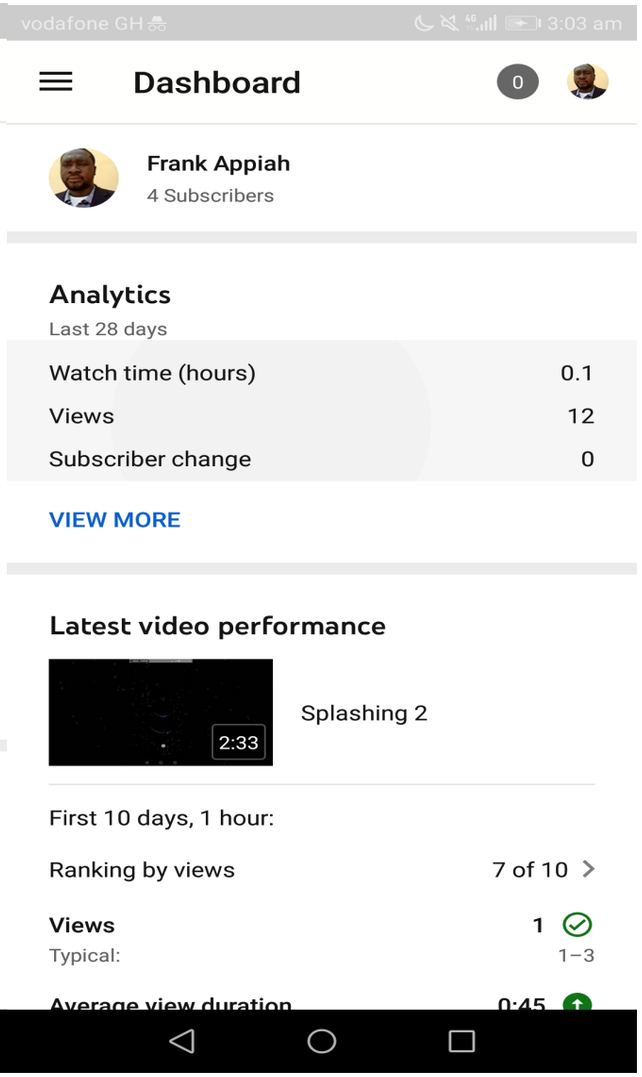
Views 12
Typical: 3–6

Average view duration 0:38
Typical: 0:11–0:32

Watch time (hours) 0.1
Typical: 0.0–1.0

GO TO VIDEO ANALYTICS





Summary

This is about entertaining urban people in an online environment. The basic idea of themed films is sourced as a means of urban experience delving on motion picture entertainment perspectives. The author did deal with the concept by providing an online motion picture resources made up of video short in much sense. With these motion pictures , fun and knowledge tasting is ideal in movie industry.

1. Frank Appiah (2020). Youtube Media Incubator. https://youtube.com/channel/UCSbqI0M3YlkJaZLxKRInc-Q. Channel Name: Frank Appiah.

2. Image 1: Tom and Jerry (2017). Image Capture on Tv series.

3. Image 2: Tom and Jerry (2017). Image Capture on Tv series.

4. Image 3: Viral body. Web image objects.

5. Image 4: Ant swarm body. Video image recorded at home.

6. Image 5: Cylindrical volume and Tablets. Image capture from Physical Biology of the Cell by Rob Philips, Jane Kondev and Julie Theriot. Garland Science.

7. Image 6: Triple Clocked Feet. Image capture from Physical Biology of the Cell by Rob Philips, Jane Kondev and Julie Theriot. Garland Science.

8. Image 7: Superheat Core. Image Capture (2018). Physic Book.

9. Image 8: Electrostatic Fields. Image Capture (2018). Physic Book.

10. Image 9: Colour Balls Duck. Web Image Capture from Friends Facebook Page.

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26. ISO(MPEG). “14496-5”. ISO’s website: www.iso.ch/ittf. Last Accessed: January, 2026.